United States Court of Appeals
for the
District of Columbia Circuit

TRANSCRIPT OF RECORD

BRIEF FOR APPELLANT

IN THE

United States Court of Appeals for the District of Columbia

JANUARY TERM, A. D. 1946 619

No. 9204

PAUL A. STURTEVANT,
Appellant,
vs.
CASPER W. OOMS,
Commissioner of Patents,
Appellee.

Appeal from the judgment of the District Court of the United States for the District of Columbia.

Honorable Alexander Holtzoff,
Associate Justice.

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United States Court of Appeals
for the District of Columbia
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JURISDICTIONAL STATEMENT.

This action originated in the United States District Court for the District of Columbia by the filing of a Complaint under the authority of Section 4915 of the Revised Statutes of the United States * to obtain reissue letters patent for an invention.

Appellant's application Serial No. 479,300 for reissue of United States Letters patent No. 2,283,707, filed in accordance with the provisions of Section 4916 of the Revised Statutes of the United States ** was rejected by the Board of Appeals of the United States Patent Office on October 13, 1943 (Decision on Rehearing dated November 26, 1943).

The Complaint was filed in the Court below on December 13, 1943, and the cause came on for trial before Mr. Justice Holtzoff on October 12, 1945. The judgment of the District Court dismissing the complaint was entered on October 26, 1945; appellant's Notice of Appeal was filed January 4, 1946; and this appeal was duly docketed herein.

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* Act of February 9, 1893, c. 74, § 9, 27 Stat. 436 as amended by the Act of March 2, 1927, c. 273, § 11, 44 Stat. 1336; the Act of March 2, 1929, c. 488, § 2(b), 45 Stat. 1476; and the Act of August 5, 1939, c. 451, § 4, 53 Stat. 1212.

** Act of May 24, 1928, c. 730, 45 Stat. 732.

STATEMENT OF THE CASE.

The claims on appeal relate to "torque wrenches."* Appellant is seeking, by his application for reissue of his original patent, to copy certain claims from a Zimmerman patent No. 2,283,888, which issued on the same day as appellant's original patent, in order that appellant may contest priority as to the subject matter of these claims. The Court below, in affirming the Patent Office rejection of the claims copied from the Zimmerman patent, held that appellant's application does not disclose a structure which will support the language used in the copied claims.

The erroneous decision of the Court below is bottomed upon a failure of the Court to appreciate a fundamental and essential characteristic of a torque wrench, without which characteristic a wrench *cannot function as a torque wrench.*

An ordinary wrench, as this Court well knows, consists of a work-engaging member to which a handle member is rigidly or integrally secured so that movement of the handle in an arc effects a corresponding movement of the work-engaging member to tighten or loosen a nut or bolt engaged thereby. When an ordinary wrench is used to tighten a nut or bolt there is no way that the operator of the wrench can determine the degree of tightness imparted to the nut or bolt. Overtightening or undertightening may therefore result.

A torque wrench differs from an ordinary wrench principally in that it permits relative pivotal or rotational movement between the work-engaging member and the handle, and utilizes this pivotal movement to measure the amount of torque applied to the work, i.e., to the nut or bolt being tightened. If the work-engaging member or head were freely rotatable relative to the handle it would be impossible to apply torque to the work and the wrench would be useless. If the work-engaging head or member were rigid with the handle the tool would be an ordinary wrench incapable of measuring torque.

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* The term "torque wrench" is a contraction of the descriptive expression "torque measuring wrench".

Accordingly, *in all torque wrenches the work-engaging head is and must be pivotally supported relative to the handle.* Likewise all torque wrenches include some means to resist relative movement between the parts, the resisting means, when the force exerted on the work reaches a predetermined value, permitting *relative pivotal or rotational movement* between the work-engaging head and the handle as a measure of the torque applied to the work.

Unless the work-engaging member is "pivotally supported" or "rotatably mounted" relative to the handle, the device is inoperative as a torque wrench.

In the face of this undisputed fact, and by reason of an utter failure to appreciate this necessary characteristic of a torque wrench, the Court below held (R. 12) that appellant's highly successful torque wrench does not include, and appellant's application does not disclose, a torque wrench in which the work-engaging member is pivotally supported or rotatably mounted with respect to the handle. Appellee concedes that the torque wrench disclosed in appellant's application is a useful and in fact a highly successful torque wrench (R. 49). Manifestly, the Court below erred in holding that appellant's torque wrench does not embody the fundamental characteristic without which it would be wholly inoperative as a torque wrench.

Appellant's Torque Wrench.—Appellant, Paul A. Sturtevant, on March 28, 1938, filed his original application Serial No. 198,375 for a torque wrench (Ex. 1).* The original application disclosed three embodiments of appellant's torque wrench, one embodiment being shown in Figs. 1, 2 and 3, a second embodiment in Fig. 4, and a third embodiment in Figs. 5 and 6 (R. 129).

The torque wrench shown in Figs. 1, 2 and 3 of appellant's original application consists of a work-engaging member 10 connected by a flexible spring bar or measuring beam 12 to a yoke or head portion 19 of a handle member 22. Relative rotation or pivotal movement between the work-engaging member and the handle is effected by flexure of the spring bar when the work-engaging member engages the work and force is applied to the handle, and this relative movement is utilized to measure the torque through a pointer 13 carried by the work-engaging member 10 and a graduated dial 15 carried by the head portion 19 of the handle. Relative pivotal movement between the work-engaging member 10 and the handle 22 causes the free end of the pointer 13 to swing over the face of the dial 15 thereby to indicate torque. The work-engaging member 10 includes a slot which extends transversely across the axis of the work-engaging member, one end of the spring bar or measuring beam 12 being secured in this slot by means of rivets 14.

The record in the Court below shows that appellant was not the first to produce a torque wrench wherein relative pivotal movement between a work-engaging member and a handle is utilized to measure the torque applied to the work. Appellant testified that various torque wrenches appeared on the market in the years 1935 and 1936 (Exs.

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* Since appellee introduced no exhibits appellant's exhibits will be identified herein simply as Ex. ....

9, 10 and 11, R. 46-48). In each of these prior devices the work-engaging head is mounted for rotational or pivotal movement relative to the handle in order to provide a measure of the torque, and various mechanisms are provided for resisting this pivotal movement and furnishing an indication of the force exerted.

Appellant's torque wrench differs from these prior devices in the elimination of various fragile parts and complicated mechanisms and constitutes the first torque wrench capable of accurately measuring torque through the use of a flexible spring bar or measuring beam directly connecting the work-engaging member and the handle in relative pivotal relation and in which the deflection of the beam is utilized as a measure of the torque applied to the work. The original application disclosing appellant's torque wrench stated (R. 130):

> "So far as applicant is aware, all measuring wrenches on the market today depend for the measurement of these applied forces on more or less complicated constructions involving small gears, glass dials, actuating rods, pull strings, and other similar complicated mechanisms. In the use of all of these elements, consideration must be given to the danger of breakage, care in handling, friction of the parts, and other similar things wholly apart from the actual handling of the tool. The absolute absence of friction is necessary to secure and maintain accuracy of measurement and this is not obtained in complicated structures."

The pivotal or rotational relation between the work-engaging member and the handle was not stressed in the original application because it was *necessarily and inherently a characteristic of any torque wrench.*

Appellant's Original Patent No. 2,283,707.—Appellant's original patent issued on May 19, 1942, with only two claims, both of which were directed to a torque wrench having the particular two-piece handle structure shown in Fig. 4 of the patent (R. 132). The prosecution history of this original patent (Ex. 1) shows that an unsuccessful attempt was made to obtain, in the original patent, claims broad enough to read on the torque wrench shown in Figs. 1, 2 and 3. No claims were presented in the application for the original patent, however, of the same scope as the claims here on appeal (R. 93, 94). When the broader claims presented in the original application were refused by the Board of Appeals of the Patent Office, appellant instructed his attorneys not to take any further appeal (R. 56). Appellant was unskilled in patent matters and, believing that the claims then allowed covered the torque wrench of Figs. 1, 2 and 3, "saw no reason for additional claims" (R. 56).

The Court below, having heard appellant's testimony, found as a fact that when appellant's original patent issued appellant did not realize that the two claims were so restricted (R. 14). It was only in February or March, 1943, that appellant discovered the fact that his patent did not cover the torque wrench shown in Figs. 1, 2 and 3 of the patent (R. 57) and the application for reissue was filed on March 16, 1943.

The Reissue Application.—The specification and drawings of the original patent remain unchanged in the reissue application (Ex. 2), but in addition to the claims of the original patent the reissue application as filed contained claims 3 to 7, inclusive (R. 3-5), which are here on appeal. The oath accompanying the reissue application (Ex. 2) sets forth the failure of the original patent to secure to appellant the complete protection intended and to which appellant is entitled. The particular insufficiency specified in the oath consists in the failure to include in the original patent claims 3 to 7, inclusive. Appellant's lack of skill in interpreting patent claims, his failure to appreciate the limited character of the claims in the original patent, and his eventual discovery of these limitations are recited with particularity in the oath.

Claims 3 to 6, inclusive, here on appeal, are copies of claims 33, 28, 15 and 12 of the Zimmerman patent No. 2,283,888 and claim 7 is a modification of Zimmerman's claim 34. Claim 8 here on appeal is a copy of Zimmerman's claim 34, and was added to appellant's reissue application on April 23, 1943, in response to the Examiner's objection to certain modified language in claim 7.

The claims on appeal are set forth in full in the complaint (R. 3-5), but for convenience claims 3 and 4, which may be considered typical, have been separated into their respective elements as follows:

3. A torque measuring wrench comprising
    (1) a handle member,
    (2) a work-engaging member
        (a) pivotally supported adjacent one end of said handle member,
    (3) a normally straight spring bar
        (a) yieldably opposing relative rock movement of said work-engaging member and said handle member,
        (b) said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and
        (c) having its opposite end arranged to have a force applied thereto through said handle member, and

(4) means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

4. A torque measuring wrench comprising

(1) a head member,

(2) a work-engaging member

  (a) rotatably mounted with respect to said head member and

  (b) having a portion provided with an opening,

  (c) said opening extending in a direction transverse to the axis of rotation of said work-engaging member and lying across said axis,

(3) an elongated flexible spring bar

  (a) having one end thereof securely mounted in said opening and

  (b) having its opposite end connected to said head member for yieldably opposing relative rotary movement of said head member and work-engaging member, and

(4) indicating means operable by said work-engaging member as said head member and work-engaging member rotate relative to each other for indicating the force applied to the work through said members and spring bar.

Each claim calls for only four structural elements, and as we shall show, each element, functioning precisely as stated in the claims, is found in appellant's torque wrench.

The Zimmerman Torque Wrench as Disclosed and Claimed in the Zimmerman Patent.—The application for the Zimmerman patent No. 2,283,888 (Ex. 3) from which the claims here on appeal are copied (claim 7 being in modified form), issued on the same day as appellant's original patent, i.e., May 19, 1942, and was pending in the Patent Office during the pendency of appellant's application for his original patent. Figs. 8, 9 and 10 of the Zimmerman patent disclose the commercial Zimmerman wrench (Ex. 19) which appeared on the market shortly after appellant's torque wrench and superseded prior torque wrenches manufactured by Zimmerman's assignee, Automotive Maintenance Company (R. 48, 49). Referring to the patent, the work-engaging member 86 is provided with a transverse slot (Fig. 10) for receiving one end of a flexible measuring beam or spring bar 92, just as in appellant's construction. The other end of the spring bar 92 in the Zimmerman construction is engaged by abutment members 96 carried by a head or casing 80 which forms a continuation of the handle 81 so that force may be transmitted from the handle to the work-engaging member through the spring bar just as in appellant's construction. The torque-indicating means employed in the Zimmerman construction consists of an arm 102 carried by the work-engaging member 86 adapted to operate a small gear 101 to actuate the pointer of a gauge 84 mounted on the casing 80.

The principal difference between appellant's torque wrench and the Zimmerman torque wrench lies in the manner of maintaining the work-engaging member, the spring bar and the handle in assembled relation. In appellant's torque wrench the end of the spring bar remote from the work-engaging member is secured directly to the head portion 19 of the handle member 22 (Fig. 3 of Sturtevant patent), while in Zimmerman a sliding connection between this end of the spring bar and the head portion 80 of the handle member 81 is provided by the abutments 96. In order to prevent the spring bar from sliding out from between the abutments 96, the head or casing 80, which extends from the handle 81 is so constructed as to enclose the work-engaging member 86, and one wall of the casing is provided with an opening through which a portion 87 of the work-engaging member 86 extends. The casing 80 while *permitting* relative pivotal movement between the work-engaging member 86 and the handle 81 upon flexure of the spring bar 92, prevents outward movement of the work-engaging member and the spring bar relative to the abutments 96 which are rigidly positioned with respect to the handle member.

The operation of the Zimmerman torque wrench is identical with the operation of the appellant's torque wrench, the Zimmerman patent stating:

> ". . . when the wrench handle 81 is grasped and rotated in either direction the pressure applied will be transmitted through the head 80, the spring 92 and the work-engaging member 86 to the work.
>
> ". . . when the work offers sufficient resistance to overcome the initial tension of spring 92, relative rock movement takes place between the head 80 and work-engaging member 86, and by measuring the extent of this movement one may determine, through the indicating unit 84, the amount of pressure applied."

Although the Zimmerman patent refers to "relative rock movement" between the head 80 and the work-engaging member 86, the head 80 is merely a continuation of the handle 81 and consequently this relative movement may as well be described as taking place between the handle 81 and the work-engaging member 86 and, as will be pointed out, *it is so described in the claims here on appeal.*

The Zimmerman patent contains 38 claims. Many of them (claim 24 for example) specify that the work-engaging member is rotatably mounted *"in said head member."* Others of the Zimmerman claims (claim 9 for example) specifically call for an abutment means slidably engaging the spring bar. Appellant's torque wrench does not include these structural features of the Zimmerman torque wrench and appellant has not attempted to copy any of the Zimmerman claims which thus properly define the structural differences between the two torque wrenches.

The claims here on appeal are broad claims apparently drafted by Zimmerman in an attempt to cover wrenches employing appellant's much simpler construction. Claims 3, 5, 6, 7 and 8, on appeal, do not mention, even by inference, the head member 80 but merely recite that a pivotal or rotational relation exists *between the work-engaging member and the handle.* Claim 4 on appeal, although it employs the term "head member" clearly refers, in so far as any functional relation is concerned, to the handle 81 of which Zimmerman's head member 80 is a part just as the yoke or head 19 is a part of the handle 22 in appellant's torque wrench. As previously pointed out, the appellant's torque wrench could not function to measure torque *if the work-engaging member were not "pivotally supported" or "rotatably mounted" relative to the handle member.*

The Decision in the Patent Office.—The Board of Appeals of the Patent Office* affirmed the Examiner's rejection of appellant's claims 3 to 8, inclusive, on three grounds: (1) that the claims are not readable on appellant's disclosure because of the recitation that the work-engaging member is pivotally supported adjacent one end of the handle; (2) that the claims are not for the same invention as was intended to be secured by the original patent; and (3) that there was no inadvertence, accident and mistake involved in appellant's failure to obtain proper claims in his original patent.

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* Original decision (Ex. 2, p. 192). On Petition for Reconsideration (Ex. 2, p. 217).

Appellant's Later Patent No. 2,385,591—On July 17, 1944, subsequent to the decision of the Board of Appeals, appellant filed in the Patent Office an application, Serial No. 545,333, which application issued on September 25, 1945, as patent No. 2,385,591 (Ex. 13). This patent discloses, in Figs. 1 and 2, a torque wrench embodying the same work-engaging member 10, the same spring bar 12, and the same handle 22 (including the head member 19) as is disclosed in the reissue application involved in this appeal. Appellant, *believing then as he does now* that language broadly descriptive of an essential characteristic of an operative torque wrench is not inappropriate in a patent based on such a torque wrench, employed in this later application the same language as is here challenged by appellee. The Patent Office raised no objection to the use of this language in the specification and claims of this second patent. The specification of this later patent describes the torque wrench in the very language that is here challenged. Thus the patent states:

> ". . . As the resistance of the work causes the spring to flex, **the head member and the handle rotate relative to the work-engaging member.**[*] The force applied at the handle continues to move the head and handle in an arc with the work-engaging member as a pivot as the work is tightened. **This rotary or pivotal movement between the head member and the work-engaging member** may be measured at a dial by a pointer." (p. 1, col. 1, ll. 33-42)
>
> ". . . As the resistance of the work causes the spring bar 12 to flex, **head 19 and handle 22 will rotate relative to the work-engaging member 10.** The force applied to the handle 22 will continue to move the handle in an arc with the work-engaging member 10 as a pivot as the work is tightened. **This rotary or pivotal movement** between the handle 22 and the work-engaging member 10 is measured at a dial 18 mounted upon head 19 by a pointer 13 se-

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[*] Emphasis in quotations is ours throughout unless otherwise noted.

> cured to the work-engaging member 10." (p. 2, col. 2, ll. 22-32)
>
> "It will be observed that in the type of wrench disclosed, applicant provides **two relatively movable members** which are so arranged that one of them operatively engages the work and is known as the work-engaging member. The other member is the handle or head member and the relative movement between the work-engaging member and the handle or head member is yieldably opposed by a flat spring bar. The force applied through the wrench is determined by measuring the extent of the **relative movement** between these two parts." (p. 2, col. 2, ll. 33-44)
>
> ". . . The scale reading 31 is calibrated in foot pounds, or according to any desired terms, so that when torque represented by a predetermined reading on dial 18 is applied through handle 22, head 19, spring bar 12 and work-engaging member 10, **the relative rotative movement** of the head member 19 and handle 22 about work-engaging member 10 as a pivot through the deflection of spring bar 12 will bring pointer tip 30 to this determined reading." (p. 2, col. 2, ll. 66-75)
>
> "When the handle 22 is grasped and rotated in either direction, the pressure applied will be transmitted through the head 19, spring bar 12 and the work-engaging member 10 to the work. As the resistance of the work causes the spring 12 to flex, **relative rock movement** takes place between the head 19 and work-engaging member 10 and the amount of the force applied may be measured by the extent of this rock movement through the pointer 13 and gauge dial 18." (p. 3, col. 2, ll. 32-41)

Among the claims of this patent No. 2,385,591 claim 8 describes the very structure that is here involved in the exact language employed in the claims on appeal. Thus this claim recites:

> "8. A torque measuring wrench comprising a head member, **a work-engaging member pivotally supported adjacent one end of said head member,** a spring yield-

> ably opposing relative rock movement of said work-engaging member and said head member, . . ."

Claim 26 employs the following similar language:

> "26. A torque measuring wrench comprising a head member, **a work-engaging member pivoted adjacent one end of said head member,** a spring bar disposed between said head member and said work-engaging member and yieldably opposing relative rock movement between said members, . . ."

Claims 9 to 17, inclusive and 21 of this later patent describe the relationship between the work-engaging member and the handle or head as involving "relative rock movement", another expression employed in the claims on appeal. *Having permitted appellant to use in this later patent the self-same language to describe and claim the identical structure, appellee is in a poor position to challenge the language on this appeal.*

The Decision in the Court Below.—The opinion of the Court below (R. 10) dismissing the complaint was delivered from the bench at the conclusion of the evidence after only limited oral arguments. The sole ground of the dismissal is that in the Court's opinion the torque wrench disclosed in the reissue application does not include a work-engaging member pivotally supported adjacent one end of the handle. The Court in its opinion misinterpreted appellant's contention as to the meaning of the disputed language in the claims and rejected what the Court conceived to be appellant's interpretation.

The Court restricted the broad functional statements of the necessary relation between the work-engaging member and the handle of any torque wrench, to the specific structure of the Zimmerman patent in which the bearing or pivot that impressed the Court *does not provide the necessary pivotal relation* between the work-engaging member and the handle, but is utilized only in order that the casing 80 of Zimmerman, not recited in the claims on appeal, *will not interfere with the pivotal relation* provided by the spring bar 92. The Court in its opinion did not mention the defense of "same invention" raised by appellee and specifically refrained from passing on the question of "inadvertence, accident or mistake."

STATUTES INVOLVED.

The statutes involved in this appeal are Sections 4915 and 4916 of the Revised Statutes of the United States.

R. S. 4915—Bill in equity to obtain patent

Whenever a patent on application is refused by the Board of Appeals or whenever any applicant is dissatisfied with the decision of the board of interference examiners, the applicant, unless appeal has been taken to the United States Court of Customs and Patent Appeals, and such appeal is pending or has been decided, in which case no action may be brought under this section, may have remedy by bill in equity, if filed within six months after such refusal or decision; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication and otherwise complying with the requirements of law. In all cases where there is no opposing party a copy of the bill shall be served on the commissioner; and all the expenses of the proceedings shall be paid by the applicant, whether the final decision is in his favor or not. In all suits brought hereunder where there are adverse parties the record in the Patent Office shall be admitted in whole or in part, on motion of either party, subject to such terms and conditions as to costs, expenses, and the further cross-examination of the witnesses as the court may impose, without prejudice, however, to the right of the parties to take further testimony. The testimony and exhibits, or parts thereof, of the record in the Patent Office when admitted shall have the same force and effect as if originally taken and produced in the suit. R.S. §4915; February 9, 1893, c. 74, § 9, 27 Stat. 436; March 2, 1927, c. 273, § 11, 44 Stat. 1336; March 2, 1929, c. 488, § 2(b), 45 Stat. 1476; August 5, 1939, c. 451, § 4, 53 Stat. 1212.

R.S. 4916—Reissue of defective patents; patents for separate parts

Whenever any patent is wholly or partly inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a patent for the same invention, and in accordance with the corrected specification, to be reissued to the patentee or to his assigns or legal representatives, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the reissued patent, but in so far as the claims of the original and reissued patents are identical, such surrender shall not affect any action then pending nor abate any cause of action then existing, and the reissued patent to the extent that its claims are identical with the original patent shall constitute a continuation thereof and have effect continuously from the date of the original patent. The commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a reissue for each of such reissued letters patent. The specifications and claims in every such case shall be subject to revision and restriction in the same manner as original applications are. Every patent so reissued, together with the corrected specifications, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in case of a machine patent shall the model or drawings be amended, except each by the other; but when there is neither model nor drawing, amendments may be made upon proof satisfactory to the commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid. R.S. § 4916; May 24, 1928, c. 730, 45 Stat. 732.

STATEMENT OF POINTS.

1. The District Court erred in holding that the torque wrench disclosed in appellant's reissue application does not include a work-engaging member pivotally supported adjacent the handle.

2. The District Court erred in holding that the torque wrench disclosed in appellant's reissue application does not include a work-engaging member pivotally connected with the handle.

3. The District Court erred in holding that the torque wrench disclosed in appellant's reissue application does not include a work-engaging member rotatably mounted with respect to a head member.

4. The District Court erred in holding that none of claims 3 to 8, inclusive, of appellant's reissue application is patentable to him.

5. The District Court erred in holding that appellant contends that the spring bar in appellant's torque wrench pivots on the work-engaging member.

6. The District Court erred in holding that the action of the Patent Office is presumed to be correct and that appellant has failed to overcome this presumption.

7. The District Court erred in failing to find that a pivotal relation between the work-engaging member and the handle of a torque wrench must exist if the torque wrench is to be operative.

8. The District Court erred in failing to find that the work-engaging member in appellant's torque wrench is "pivotally supported adjacent" and "pivotally connected with" the handle and is likewise "rotatably mounted with respect to a head member."

9. The District Court erred in failing to find that

none of claims 3 to 8, inclusive, of appellant's reissue application requires any pivotal support or rotatable mounting of the work-engaging member relative to the handle other than that provided by the spring bar recited in the claims.

10. The District Court erred in failing to find that the action of the Patent Office granting appellant's later patent No. 2,385,591 disclosing the same torque wrench and utilizing the same language as appellant's reissue application overcomes any presumption of correctness in the administrative decision of the Patent Office denying propriety of the language in the reissue application.

11. The District Court erred in failing to find that each of claims 3 to 8, inclusive, of appellant's reissue application is patentable to him and that appellant is lawfully entitled to have his original patent No. 2,283,707 reissued to include these claims.

12. The District Court erred in dismissing the Complaint.

SUMMARY OF ARGUMENT.

Claims copied from an issued patent for purposes of interference must be given the broadest interpretation that they will reasonably support. Unless the claim language is ambiguous, resort to the disclosure of the Zimmerman patent in order to read into the claims limitations not expressed therein is improper. The claims on appeal are not ambiguous. The *pivotal support* of the work-engaging member relative to the handle member is *essential* to the operation of *any* torque wrench and *is necessarily present in appellant's concededly operative and successful torque wrench.*

The claims on appeal do not call for any pivotal support or rotatable mounting means other than that provided by the spring bar. The functional statement of the necessary relationship between the work-engaging member and the handle is consistent with the structure recited in the claims, i.e., the connection of the spring bar to the work-engaging member and the handle. A pin and a bearing are not essential to a pivotal support. The art recognizes the use of a flat flexible spring for pivotally mounting one part relative to another. Appellant's use of a flat spring bar for effecting this pivotal relation is similar to other pivotal mountings known in the art and to Zimmerman's use of his flat spring bar.

The use of the same language to describe the same structure in appellant's later issued patent No. 2,385,591 confirms the propriety of the language in the claims on appeal. Approval of this language by the Patent Office in this later patent negatives any presumption of correctness in the administrative ruling of the Patent Office in appellant's reissue application. It is proper to refer to appellant's later patent to determine the proper meaning of the language here used. Under the accepted doctrine of claim differentiation limitations specifically recited in other claims of the Zimmerman patent should not be read into the claims on appeal.

The claims on appeal are directed to the same invention as was intended to be secured by the original patent. The specification and drawing of the reissue application are identical with those of the original patent, and the reissue claims are directed to the torque wrench clearly disclosed therein. The evidence shows that appellant did not know at the time his original patent issued that the two claims thereof did not cover the torque wrench shown in Figs. 1, 2 and 3. and this constitutes "inadvertence, accident or mistake" within the meaning of the reissue statute.

ARGUMENT.

Under the Authorities the Claims on Appeal Must Be Given the Broadest Interpretation That They Will Reasonably Support.—It is well settled, by decisions of this and other courts, that claims copied from an issued patent for purposes of interference must be given the broadest interpretation that they will reasonably support and that unless the claim language is ambiguous it is improper to resort to the disclosure of the patent for the purpose of importing into the claims limitations not expressed in the claim language.

In the case of *Miel* v. *Young,* 29 App. D.C. 481, this Court, speaking through Mr. Justice McComas, said with respect to a patentee's contention that the claims in issue were not supported in an interfering application:

> "This claim should be given the broadest interpretation which it will support and we should not strive

> to import limitations from the specification to meet the exigencies of the particular situation in which the claim may stand at a given time. . . .

* * * * *

> "We concur with the Commissioner that upon this issue we should not read into it limitations not within it, limitations found only in the specification of the appellee's patent. Young has fully disclosed the invention defined by the terms of the interference."

The Patent Office, in resisting *ex parte* an applicant's attempt to copy claims from an issued patent, as in the case at bar, occupies no better position than the patentee in an interference proceeding.

In the case of *In re Levy,* 55 App. D. C. 137, 2 F. (2d) 939, the Armstrong patent, from which Levy had copied claims, disclosed an apparatus employing very high frequency, while Levy's application disclosed a different apparatus employing different high frequencies. The claim merely recited "predetermined high frequency" but the Commissioner, in refusing the claims to Levy, read into the claims a limitation to the very high frequencies employed by Armstrong. This Court, speaking through Mr. Justice Robb, said:

> ". . . But, over and over again, we have ruled that claims must be given the broadest interpretation which they reasonably will support, and that a party will not be permitted to narrow his claims to suit the exigencies of a particular situation. *Miel* v. *Young,* 29 App. D.C. 481; *Lindmark* v. *Hodgkinson,* 31 App. D.C. 612; *Cox* v. *Headley,* 49 App. D.C. 341, 265 F. 981. The party who states his claims before the Patent Office in broad language is not in a position, when thrown into interference, to read limitations into them. The reason is obvious. If he has asked too much, he may reform his claims in an appropriate proceeding. When he takes claims broader than his invention, however, he thereby is enabled unduly to harass the public."

* * * * *

> "It appearing that the Assistant Commissioner failed to give these claims the broad interpretation

> of which they reasonably were capable, and that when so interpreted they probably would have been allowable to the applicant, we follow our usual course and resolve any doubt in applicant's favor.
>
> "The decision is reversed."

The decisions of the Court of Customs and Patent Appeals on direct appeals from the Patent Office involving similar facts follow the same well established rule. In the case of *Shultz* v. *Dunham,* 67 F. (2d) 501, the court said:

> "Again, the appellant insists that the systems of Shultz and Dunham are so distinct as to have no common subject-matter, and that the counts should be interpreted in accordance with what they mean in the patent itself; citing *Slattery* v. *Larner,* 36 F. (2d) 298, 17 C.C.P.A. 725; *Podlesak* v. *McInnerney,* 26 App. D. C. 399, and other cases. Counts in an interference should be given as broad a meaning as their terminology will reasonably permit. *Slattery* v. *Larner, supra.* The counts of the interference here read broadly upon the disclosures of both parties. If the appellant had been content to rest his claims upon the specific structure disclosed by him, the appellee might not have been able to make such claims. However, when he so broadens his claims as to include other systems including differing structure, he cannot complain if others having such differing structures make the same claim. These counts are broadly drawn, are not ambiguous, and must be given the broadest construction which their language will support. Limitations, not expressed, will not be read into them. *Martin* v. *Friendly,* 58 F. (2d) 421, 19 C.C.P.A. 1181; *Oldroyd* v. *Morgan,* 57 F. (2d) 358, 19 C.C.P.A. 1111."

Similarly, in the case of *Woelm* v. *Hasselquist,* 62 F. (2d) 365, the same court, in denying the patentee's attempt to limit his claims by reference to the specification in order to avoid an interference, said:

> ". . . Accordingly, we are clearly of the opinion that, although the structures of the two devices are

> different, the count in issue is sufficiently broad to cover them. In view of the fact that the count is not limited to the precise structure disclosed in the specification of appellant's patent, appellant may not now insist that limitations be read into it for the purpose of avoiding the issue of priority. On the contrary, the count must be given the broadest interpretation which it will reasonably support. *Field* v. *Stow,* 49 F. (2d) 840, 18 C.C.P.A. 1437; *Sweetland* v. *Cole,* 53 F. (2d) 709, 19 C.C.P.A. 751."

See also the companion case at 62 F. (2d) 367, wherein the court, after referring to the appellant's attempt to read into the claims in issue distinctions between the two devices involved, said:

> "To so hold would require that the count be construed strictly by appellant's device; whereas it seems, as stated, to be broader in its import.
>
> * * * * *
>
> "All these limitations would have to be read into the count in order to sustain appellant's contention. We see no reason why the rule of broad interpretation is not here applicable. Of course, in an interference case well-defined limitations may not be disregarded, but such limitations, to be binding, must appear in the count itself. *Woelm* v. *Hasselquist, supra.*"

The recent decision of this Court in the case of *The Hoover Company* v. *Ooms,* .... App. D. C. ...., 68 U.S.P.Q. 66, is not in conflict with the established rule of law followed in the above-cited cases. In the *Hoover* case the claims in issue referred to a "triple heat exchanger," a term having no established meaning in the art, and the court properly looked to the specification of the patent in which the claims originated to determine the proper meaning of this otherwise completely ambiguous term.

The Claims on Appeal Are Not Ambiguous—Reference to the Zimmerman Patent Disclosure Is Unnecessary.—Appellee conceded in the Court below (R. 70)* that claim 3, for example, reads on appellant's disclosure except for the phrase "pivotally supported adjacent one end of said handle member." Certainly there is nothing ambiguous about the meaning of this phrase. "Pivotally supported" can only mean that the member which is supported is capable of pivotal or swinging or rotating movement relative to some other member. As we have shown, this pivotal support of the work-engaging member relative to the handle member is essential to the torque measuring operation of any torque wrench and is necessarily present in the appellant's structure.

"Adjacent one end of the handle member" means merely that the work-engaging member is supported in proximity to or close to one end of the handle member. The exact manner in which this support is accomplished is set forth in the remaining elements of the claim. Clearly, the term "adjacent" does not require that the work-engaging member be supported *on* or *in* or *by* the handle member itself, and elements (3), (3) (a), (3) (b) and (3)(c) of the claim (*ante* p. 8) clearly and unequivocally set forth the exact manner in which the spring bar provides pivotal support for the work-engaging member at a point adjacent one end of the handle.

The Claims In Issue Do Not Call For Any Pivotal Support or Rotatable Mounting Means Other Than That Provided by the Spring Bar.—The difficulty encountered by the Patent Office and by the Court below in finding in appellant's torque wrench a proper support for the claims on appeal appears to arise from their failure to appreciate that the phrase in question, i.e., element (2) (a) of claim 3 (*ante* p. 8), is not a recitation of "a pivot for" or of "means for pivotally supporting" the work-engaging member. Instead, this phrase is merely a functional statement of the necessary relationship between the handle and the work-engaging member, which relationship is provided by the spring bar as recited in the following portions of the claim.

---

* At line 21 of R. 70, the District Court was speaking and not appellant's counsel as will be apparent from the context of the colloquy appearing on this page and particularly at line 31, where appellee's counsel answers the Court directly and not appellant's counsel.

While it may be conceded that functional statements in skillfully drafted claims usually follow the recitation of the structural element for accomplishing the function, this is merely a matter of orderly presentation. It is not a binding rule of claim interpretation. Where the meaning of the claim is clear, as here, a functional statement may as well precede as follow a structural recitation.

Thus, in claim 3 on appeal, the functional statement of the pivotal relation between the work-engaging member and the handle precedes the recitation of the spring bar, the structure which provides this pivotal relation.

It is abundantly apparent that a mere transposition of the functional statement from a position immediately preceding to a position immediately following the structural element which accomplishes the function would not change the meaning of the claim. As claim 3 appears in the Zimmerman patent, elements (2) and (3) of the claim read as follows:

> (2) a work-engaging member
>
> (a) pivotally supported adjacent one end of said handle member,
>
> (3) a normally straight spring bar
>
> (a) yieldably opposing relative rock movement of said work-engaging member and said handle member,

(b) said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and

(c) having its opposite end arranged to have a force applied thereto through said handle member, and

If element (2) (a) is transposed so as to immediately follow instead of immediately precede element (3), and is slightly modified so as to relate back to element (2), the claim would then read:

(2) a work-engaging member

(3) a normally straight spring bar

(a) pivotally supporting said work-engaging member adjacent one end of said handle member and

(b) yieldably opposing relative rock movement of said work-engaging member and said handle member,

(c) said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and

(d) having its opposite end arranged to have a force applied thereto through said handle member, and

Certainly there can be no dispute but what the claim, with the functional statement thus transposed, reads clearly and precisely upon appellant's torque wrench.

A Pin and a Bearing Are Not Essential To a Pivotal Support or a Rotatable Mounting.—Appellant's evidence clearly establishes that a pivotal support or a rotatable mounting of one part relative to another may be achieved without the use of a pin and bearing. The Court below at various times during the trial appeared to accept this proposition, but in its opinion disposing of the case based its dismissal of the complaint on the fact that appellant's torque wrench does not include a bearing for the work-engaging member.

The witness Van Deventer, a consulting engineer of long experience, whose qualifications are conceded by appellee (R. 64), testified that a pivotal support does not require a pin and bearing (R. 77). He enumerated various devices well known in the mechanical arts, i.e., clocks, thermostats, electric bells, compasses and electroscopes, in which one part is pivotally supported without recourse to a pin and bearing (R. 77). Exhibits 14, 15A, 15B, 16 and 17 were produced by the witness to demonstrate devices wherein the pivotal support of one or more parts of the device is accomplished by the use of a flexible spring or strip comparable to appellant's spring bar 12. At the conclusion of the witness's demonstration of these devices, the Court observed:

> ". . . The Court certainly is **not** going to hold that pivotal support must be restricted to a pin and bearing. That does not detract from the Court's tentative impression about it, however, that the pivotal support **must be between two members** of the patented invention."

Just what meaning the Court intended to convey by the second sentence in the above quotation would be entirely obscure were it not for the fact that it developed during final arguments that the Court completely misapprehended appellant's position and did not understand the operation of a torque wrench. Obviously, the pivotal support provided by the spring bar in appellant's torque wrench is "between two members of the patented invention,'' i.e., between the work-engaging member and the handle. The Court, however, was laboring under the misapprehension that the work-engaging member *pivoted on the work* during operation of the wrench (an impossible condition), and the Court mistakenly believed that appellant was relying on such a pivotal movement to satisfy the claim language. The following colloquy, which occurred during the final arguments (R. 102) illustrates the Court's complete misunderstanding of the issues involved:

> ''The Court: It was my understanding that you claimed—if I am wrong I want to be corrected—that the pivotal support arises when the work-engaging member engaged the work and the functioning from that moment on is pivotal as between the work and the work-engaging member.
>
> ''That is what I understood you to say in your opening statement.
>
> ''Mr. Coltman: I am sorry. I didn't mean to give the Court that impression.
>
> ''The Court: What is your contention? I am glad to clarify my thinking.
>
> ''Mr. Coltman: The contention is that when the wrench is in operation, and the work has been brought to a tightened position, enough to overcome the resistance of the spring—up to that time the wrench moves as a rigid unit, both in Zimmerman and in Sturtevant—
>
> ''There is no movement at all between this member 87 and 88 in Zimmerman. At that time the parts move as a unit, and then when the work is tightened enough to overcome the resistance of this spring the handle continues to move, and that continued movement here produces a pivotal movement through the spring bar.
>
> ''In other words, this then becomes pivotally supported with respect to the work-engaging member so that pivotal movement can be reflected in the movement of the pointer with respect to the gauge to determine or indicate torque.
>
> ''The Court: **Then my understanding is correct,** that

the pivotal function is **between the work-engaging member and the work.**

"Mr. Coltman: No, Your Honor. The work-engaging member remains fixed on the work and does not move at all on the work.

"The Court: What moves then?

"Mr. Coltman: The handle, Your Honor. The work-engaging member does not move on the work.

"The Court: Oh yes; I should have said the handle.

"Well, then, will you tell me what member, just what piece of apparatus, pivots on what other piece of apparatus?

"Mr. Coltman: The handle member pivots relatively or with respect to the work-engaging member.

"The Court: I see your point. I thought your point was the work-engaging member pivots with respect to the work.

"Mr. Coltman: No, Your Honor.

"The Court: Your point now is that the handle pivots with respect to the work-engaging member.

"Mr. Coltman: That is correct.

"The Court: Even though there is no pivotal connection between the two, even though there is a solid connection between the two.

"Mr. Coltman: There is no solid connection.

"The Court: The two together form a unitary structure?

"Mr. Coltman: It is a unitary structure, yes, because they are all connected together as in any pivotal mounting.

"The Court: They are one and the same?

"Mr. Coltman: It is exactly the same situation as in Plaintiff's Exhibit 14, this clock. This pendulum pivots. No one would ever say that the pendulum doesn't pivot, and the same type of mounting is provided here for the pendulum as it is for the spring.

"The Court: I get your point."

Further confusion in the mind of the lower Court is evidenced by the immediately ensuing colloquy (R. 104) wherein the Court indicates a lack of understanding of the Zimmerman wrench:

> "The Court: In other words, to put it simply, is it your contention that the flexing motion of the handle constitutes the pivotal function?
>
> "Mr. Coltman: Yes, sir, not of the handle but of the spring bar between the work-engaging member and the handle. That is exactly like Zimmerman shows.
>
> "The Court: Except that Zimmerman has a true pivotal function in the work-engaging member.
>
> "Mr. Coltman: No, sir.
>
> "The Court: I do not know whether it is necessary to have that additional element that Zimmerman inserts in order to operate the device efficiently, but he does have this additional element whereby **the spring bar mechanically pivots on the work-engaging member.**"

The spring bar in the Zimmerman wrench is *rigidly connected to the work-engaging member* exactly as in the Sturtevant wrench, as clearly shown in Fig. 10 of the Zimmerman patent. It does not pivot on the work-engaging member as the Court suggested.

Although the Court was apparently completely convinced during the trial that a pivotal support does not require a pin and bearing, this conviction being sufficiently strong to elicit a ruling prohibiting any further testimony on the point (R. 80, 83-84), the Court's opinion completely overlooks this convincing evidence and bases the dismissal of the complaint on the absence of a pin and bearing in appellant's torque wrench. In the opinion delivered from the bench at the conclusion of the arguments, the Court below again evidenced complete confusion as to appellant's torque wrench and its operation. The opinion states (R. 11):

> "The plaintiff counters by asserting that the claim is met by the fact that in actual operation the spring

> is flexed against the work-engaging member, and that, therefore, **the spring bar pivots on the work-engaging member.**"
>
> * * * * *
>
> "This phrase certainly seems to the Court to convey the concept of a pivotal connection between two members of the patented device."

Obviously the spring bar which connects the work-engaging member and the handle in appellant's torque wrench provides a pivotal connection between two members of the patented device, and the Court's assertion that appellant contends that the spring bar pivots on the work-engaging member is manifest error.

The claims on appeal do not call for a pin and bearing construction, but merely recite a pivotal relation which is provided in the appellant's torque wrench and in the Zimmerman torque wrench by the respective spring bars 12 and 92. The appellant's torque wrench thus embodies, and his reissue application discloses, every element required by the language of the claims on appeal, and when operated appellant's torque wrench performs every function called for by the claims.

Appellant's Later Patent No. 2,385,591 Negatives Any Presumption of Correctness in the Patent Office Decision as to the Meaning of the Claims on Appeal.—

The Court below bolstered its erroneous conclusion as to the requirements of the claim language in issue by reference to the general principle that actions of administrative agencies, such as the Patent Office, are presumed to be correct, and the court held that appellant had not carried the burden of overcoming this presumption. The mere issuance of the second patent overcomes any presumption and the burden, if any, was upon appellee to explain the contradictory rulings of the Patent Office.

Where the same administrative agency has made directly contrary rulings in cases involving identical facts, there can be no presumption of correctness unless it is in favor of the later of the two rulings. In issuing appellant's later patent the Patent Office approved the same language as is used in the claims on appeal when applied to the identical structure here involved. The Court below summarily dismissed the later patent, holding that the issuance of the later patent could not create an estoppel against the government. Appellant does not and never has contended that an estoppel arises from the grant of the later patent. Certainly it is fundamental logic, however, that when the propriety of specific language is in question the use of similar language by the same parties under identical circumstances is highly persuasive.

The Court below in holding (R. 13) that the Patent Office in its ruling "on the reissue application" was not "precluded from changing its position as to the proper meaning of the phrase 'pivotally supported'" evidenced a complete misunderstanding of the sequence in which the Patent Office rulings were made. The fact is that the Patent Office ruling in appellant's patent No. 2,385,591 was *subsequent* to its ruling in the case at bar. The Patent Office *changed its position in its second and later ruling* and approved the meaning that appellant here attributes to the phrase "pivotally supported."

That the change in position by the Patent Office took place during the pendency of the case at bar and after appellant's heated argument with the Examiner is indeed persuasive that the Patent Office acknowledged its error and adopted the meaning in Patent No. 2,385,591 which it **now** believes to be correct.

That a second patent of the same patentee may properly be referred to as a guide in determining the meaning of particular phrases and expressions used in patent claims is established by the decision of the Supreme Court of the United States in the case of *Weber Electric Co.* v. *E. H. Freeman Electric Co.,* 256 U. S. 668. There the language in question defined the relationship between two parts of the patented device as "telescopically received." The court, in construing this language looked to a second patent issued to the same patentee, and said (p. 678):

> ". . . that no rotary movement was implied in the use of 'telescopically received' and 'telescopically applied' in the patent in suit is further unmistakably shown by the frequent use of the same or equivalent expressions in the specification and claims of patentee's later patent. . .
>
> "For the reasons thus elaborated, we conclude that the socket of the respondent does not infringe the fourth claim of the patent in suit . . . and also because the filewrapper and the subsequent patent show that the disclosure is, and was intended to be, limited to a construction operative by direct longitudinal movement or thrust without such rotative movement."

Recognition of the rule of construction adopted in the *Weber* case is found in the decision of Judge Woolsey in the case of *Hayes, et al.* v. *Surface Combustion Corporation,* 18 F. Supp. 871 (reversed on other grounds at 96 F. (2d) 61, opinion by Judge Manton), wherein Judge Woolsey said (p. 878):

> "I am permitted under the decision of *Weber Electric Company* v. *E. H. Freeman Electric Company,* 256 U. S. 668, 41 S. Ct. 600, 65 L. Ed. 1162, to look at a subsequent patent by the same patentee in order to see the meaning of the same or equivalent expressions which he has used in both patents."

Likewise, in the case of *Lewis Blind-Stitch Mach. Co.* v. *Arbetter Felling Mach. Co.,* 208 Fed. 992 (affirmed 219

Fed. 557), Judge Sanborn, in construing the patent there involved, said (p. 1001):

> "... But the rule of construction adopted respecting several deeds or contracts between the same parties, made about the same time, relating to the same subject-matter, and as parts of the same transactions, undoubtedly applies to patents and patent applications. All may be resorted to on an inquiry as to the meaning of any one. The seam-applications, interference, and Lewis' patent application, related to the same subject-matter, and were all pending during substantially the same period. Therefore **all may be looked into to determine the proper construction of the Lewis patent.**"

As this Court said in the case of *In re Levy* (*ante,* p. 23), any doubt as to the meaning of the language in question should be resolved in applicant's favor. This is particularly true where the administrative tribunal (Patent Office) has made squarely contradictory rulings on the same state of facts.

Limitations Specifically Recited in Other Claims of the Zimmerman Patent Should Not Be Read Into the Claims On Appeal.—As previously shown, the claim language in question here is not ambiguous and it should be given its broadest possible meaning regardless of the details of construction disclosed in the Zimmerman patent. However, reference to the Zimmerman patent confirms the broad character of the language used in these claims.

The Zimmerman patent discloses the same fundamental combination of elements as appellant's reissue application, i.e., a work-engaging member supported by a spring bar for pivotal movement relative to the handle together with means for indicating this movement as a measure of the torque applied to the work, the end of the spring bar secured to the work-engaging member extending across the axis of rotation thereof in a slot provided in the work-engaging member. The claims in issue are broadly directed to this combination and do not, either expressly or by inference, recite any of the additional constructional details employed in the Zimmerman wrench to facilitate assembly and provide certain alleged operational advantages, i.e., the hollow casing 80 and the slidable connection between the spring bar and the adjustable abutments 96.

The thirty-eight claims of the Zimmerman patent are carefully drafted to run the gamut from narrow detailed claims to broad and comprehensive claims. Claim 1 of the patent, for example, defines the chamber formed by the casing 80 and specifies that the work-engaging member is "rockably mounted in said chamber" and has "an exposed part adapted for engagement with the work." Claim 22 specifically recites that the work-engaging member is "rotatably mounted **in the top and bottom walls**" of the casing or head member. Claim 27 is somewhat broader than claim 22, merely specifying that the work-engaging member is rotatably mounted *in the head member* without reciting the top and bottom walls thereof, and claims 29 and 32, for example, specify that the work-engaging member is "carried by" the handle or body member or is "supported thereby."

The language used in the claims on appeal is broader than any of the above-quoted language and should not be restricted so as to render it equivalent to the more limiting language.

In the case of *Smith* v. *Snow, et al.,* 294 U. S. 1, the Supreme Court announced the doctrine of claim differentiation which should control in the case at bar. The Court, speaking through Mr. Justice Stone, after referring to various details not specified in the claim language, said:

> ". . . The omission of these requirements from Claim 1 is the more pointed as the other claims of

> the patent speak in particular of a power-driven fan, of the location of the fan, of curtains and a partition obviously intended to give direction to the current of air, of a vertically directed current of air, and of air circulating from the bottom of the chamber into the parts of it occupied by the tiers of egg trays. **Thus by striking and an obviously intended contrast with other claims,** Claim 1 covers broadly the essential elements of the Smith invention as we have already described it. *Symington Co.* v. *National Malleable Castings Co.,* 250 U. S. 383, 385; *Lamson Consolidated Store Service Co.* v. *Hillman,* 123 Fed. 416, 419 (C.C.A. 7th); *Wm. B. Scaife & Sons Co.* v. *Falls City Woolen Mills,* 209 Fed. 210, 214 (C.C.A. 6th)."

Similarly, this Court in *Andrews* v. *Nilson,* 27 App. D. C. 451, decided long prior to the *Smith* case, recognized this doctrine of claim differentiation. There the court said:

> ". . . The reasonable presumption is that an inventor intends to protect his invention broadly, and consequently the courts have often said that the scope of a claim should not be restricted beyond the fair and ordinary meaning of the words, save for the purpose of saving it. In reading a claim for the purpose of construing it, **heed must not only be paid** to the specification proper, and to the drawings, **but also to the other claims of the patent** (*Ryder* v. *Schlichter,* 126 F. R. 487)."

To the same effect is the decision of the District Court in the case of *General Electric Co.* v. *Parr Electric Co., Inc.,* 21 F. Supp. 471, where Judge Campbell, following the decision of *Smith* v. *Snow,* said (p. 474):

> "Claim 1 (which is not in suit) claims specifically this feature of a leading end 75° long and a trailing end 60° long. No such limitation as to width is found in any of the claims in suit, and its absence indicates, under the claim differentiation doctrine, that they were not intended to be so limited. *Smith* v. *Snow,* 294 U. S. 1, 55 S. Ct. 279, 79 L. Ed. 721."

All of the evidence in this case, including the testimony of appellant's expert witness, the appellant's later-issued patent No. 2,385,591, and the claims of varying scope in the Zimmerman patent, establishes the breadth of the claims here on appeal, which claims are clearly readable upon appellant's reissue application.

Under the Authorities the Claims On Appeal Are Directed to the "Same Invention" as Was Intended To Be Secured By Appellant's Original Patent, and Appellant's Failure to Obtain Adequate Claims in His Original Patent Was Due to "Inadvertence, Accident or Mistake".— The Court below did not pass upon either of these technical grounds pleaded by the appellee, and we do not know to what extent the appellee will urge these points on this appeal. Both of these grounds, however, may be briefly disposed of by reference to the controlling authorities.

The most recent pronouncement of the Supreme Court on the question of same invention, *U. S. Industrial Chemicals, Inc.* v. *Carbide & Carbon Chemicals Corp.*, 315 U. S. 668, is not controlling on this appeal because of the entirely different facts involved. In the *Industrial Chemicals* case the reissue claims omitted a step of the process which had been described in the original patent as a *necessary* step. Certainly in the case at bar there is nothing in the appellant's original patent to indicate that the modified handle construction defined in the two claims of the original patent is a necessary element of appellant's improved torque wrench. The objects of the original patent are broadly directed to appellant's torque wrench without regard to whether or not the handle construction of Fig. 4 is employed. The modified handle construction shown in Fig. 4 is described in the original patent merely as an additional feature which may be employed and not as a necessary feature of appellant's torque wrench. The specification and drawing of the reissue application are identical with those of the appellant's original patent.

With respect to the question of inadvertence, accident and mistake, the Supreme Court, speaking through Mr. Justice Bradley in *Miller* v. *Brass Co.,* 104 U. S. 350, said:

> "If a patentee who has no correction to suggest in his specification except to make his claim broader and more comprehensive, uses due diligence in returning to the Patent Office, and says, 'I omitted this,' or 'my solicitor did not understand that,' his application may be entertained, and, on a proper showing correction may be made."

Perhaps the best discussion to be found in the books relative to these two reissue questions is contained in Judge Denison's decision in the case of *American Automotoneer Co., et al.* v. *Porter,* 232 Fed. 456. With respect to the question of same invention, the court said (p. 460):

> "The further and last statutory condition is that the reissue must be for 'the same invention.' It is true that, for purposes of determining infringement, the identity of the patented invention is fixed by the claims; but to apply the same test to identity of invention as between original and reissue loses sight of the difference between the real invention and the originally patented invention, and unless there is such a difference, there is no occasion for reissue. To recognize that difference and permit it to be corrected is the whole purpose of the reissue statute; and so it seems quite destructive of the statute to assume that the identity of the actual invention is permanently declared and fixed by the form which the original claims are inadvertently allowed to take."

The question of inadvertence was dealt with by Judge Denison in the following language (p. 460):

> "'Inadvertence' is a word of broad meaning. The act of the patentee, through his solicitor, in drafting or accepting claims not commensurate with the invention, may be considered a mistake of law or a mistake of fact. In the typical case it is rather of the latter character, and is made because he does not appreciate the part which certain elements play in the operation and the value of the device described; but whether we call it a mistake of law or fact, it cannot very well escape the appellation 'inadvertent,' unless, in truth, it is considered and deliberate. *Leggett* v. *Avery,* 101 U.S. 256, 260, 25 L. Ed. 865; *Yale* v. *Berkshire,* 135 U.S. 342, 403, 10 Sup. Ct. 884, 34 L. Ed. 168; *Grand Rapids Co.* v. *Baker* (C.C.A. 6) 216 Fed. 341, 351, 132 C.C.A. 485."

In summary the Court said (p. 461):

> "We thus see that, apparently, the statutory inoperativeness, insufficiency, and inadvertence may exist, even though the only correction to be made is to broaden the claims by omitting unnecessary limitations, and that the particular invention first claimed in the reissue, may be sufficiently disclosed in the original merely by specification and drawing, and without express verbal reference thereto. . . . We are satisfied to hold that **the necessary insufficiency of specification may consist only in that the claims are too narrow; that the necessary inadvertence or mistake may be found solely in the action of the patentee, or his solicitor in framing these too narrow claims; that the original and reissue may be for the same invention although the original specification does not expressly indicate that the invention was regarded more broadly than the claims declared it. . . .**"

In the case at bar the purpose of the appellant's reissue application is to broaden the claims, and as we have demonstrated, the subject matter of the claims on appeal is clearly disclosed in the original specification and drawings. The appellant testified that at the time his original patent was granted he did not know that the two claims allowed did not cover the torque wrench of Figs. 1, 2 and 3, and the Court below so found.

CONCLUSION.

On behalf of appellant it is respectfully submitted that the reissue application here on appeal is a proper reissue application under the reissue statute, that the claims on appeal are clearly supported in appellant's reissue application, and that the judgment of the District Court should be reversed.

Respectfully submitted,

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United States Court of Appeals
for the District of Columbia

FILED JUN 18 1946

Joseph W. Stewart

CLERK

BRIEF FOR APPELLEE

United States Court of Appeals

DISTRICT OF COLUMBIA

APPEAL NO. 9204

PAUL A. STURTEVANT, APPELLANT
v.
CASPER W. OOMS, COMMISSIONER OF PATENTS,
APPELLEE

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

W. W. COCHRAN,
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United States Court of Appeals

DISTRICT OF COLUMBIA

APPEAL NO. 9204

PAUL A. STURTEVANT, APPELLANT
v.
CASPER W. OOMS, COMMISSIONER OF PATENTS,
APPELLEE

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

This is an appeal from the Judgment (App. 15) of the District Court of the United States for the District of Columbia dismissing a Complaint (App. 2) brought by appellant to obtain a reissue of his patent No. 2,283,707, which was issued on May 19, 1942.

STATEMENT OF THE CASE

Appellant's patent (App. 129) which he seeks to have reissued relates to what is known as a torque wrench. More precisely these wrenches are torque measuring wrenches. As shown in the drawing the wrench has a head portion 10 carrying a stud 11 for engagement with the nut or bolt which is to be turned by the wrench. The wrench also has a handle 22, 19. The handle is connected to the head 10 by a steel bar or strip 12 which is somewhat flexible. The ends of the strip 12 are fixedly connected to the head 10 and the handle 19, 22, respectively (App. 130, first col., lines 7 to 10). The wrench is manipulated in the same manner as an ordinary wrench. As the nut or bolt begins to tighten, more and more force must be applied to the handle, and the strip 12 flexes more and more. The amount of flexure will be a measure of the force exerted on the handle. To indicate the amount of flexure there is provided a rigid pointer 13 rigidly attached at one end to the head 10, and extending at its other end over a dial 18 carried on the handle. When the nut has been made tight, the head 10 stops turning and the pointer 13 likewise becomes stationary. The strip 12 however flexes and the handle with the dial moves laterally under the pointer. The amount of deflection is indicated by the pointer.

The two claims (App. 132) of the patent, which were allowed after a prosecution in the Patent Office lasting 4 years, are limited to a wrench having the particular grip portion of the handle, which is shown in Fig. 4 (App. 129). As shown the grip portion 22a is pivoted at 26 to the bar 23a.

Ten months after his patent was issued appellant filed the application at bar for a reissue of his patent. In the reissue application appellant added a number of claims, some of which are duplicates of claims of a patent No. 2,283,888 (App. 133) which was granted to H. W. Zimmerman on May 19, 1942, the same day that appellant's patent issued.

The claims on appeal here are numbered 3 to 8, inclusive, in appellant's reissue application (App. 3 to 5). Claims 3, 4, 5, and 6 are duplicates of claims 33, 28, 15, and 12, respectively, of the Zimmerman patent. Claims 7 and 8 of the reissue application are modifications of claim 34 of the Zimmerman patent.

Appellant's purpose in filing application for a reissue of his patent was to have an interference proceeding instituted in the Patent Office to determine whether he or Zimmerman was the first inventor of the subject matter defined in the claims on appeal.

The examiner held (Rec. 435–450) appellant not entitled to the claims for three reasons:

(1) The claims are for an invention which is not disclosed in appellant's granted patent or in his reissue application,

(2) The claims are not for the same invention as that sought to be protected in appellant's patent,

(3) Applicant made no sufficient showing that his failure to obtain these claims in his patent was due to inadvertence, accident, or mistake, as is required by the statute authorizing reissues of patents.

The statute (Sec. 4916 R. S., U. S. C., title 35, sec. 64) reads as follows:

> Whenever any patent is wholly or partly inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he has a right to claim as

new, if the error had arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a patent for the same invention, and in accordance with the corrected specification, to be reissued to the patentee or to his assigns or legal representatives, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the reissued patent, but in so far as the claims of the original and reissued patents are identical, such surrender shall not affect any action then pending nor abate any cause of action then existing, and the reissued patent to the extent that its claims are identical with the original patent shall constitute a continuation thereof and have effect continuously from the date of the original patent. The commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a reissue for each of such reissued letters patent. The specifications and claims in every such case shall be subject to revision and restriction in the same manner as original applications are. Every patent so reissued, together with the corrected specifications, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in the case of a machine patent

> shall the model or drawings be amended, except each by the other; but when there is neither model nor drawing, amendments may be made upon proof satisfactory to the commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid.

The District Court confined its Opinion (App. 10) and its Findings of Fact and Conclusions of Law to the first of the three reasons stated above and dismissed the complaint on the ground that appellant's application does not disclose the subject matter of the appealed claims.

THE CLAIMS ON APPEAL

Claim 3 reads as follows (App. 3):

> 3. *A torque measuring wrench comprising a handle member, a work-engaging member pivotally supported adjacent one end of said handle member,* a normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end arranged to have a force applied thereto through said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

Claim 4 contains the similar clause

> A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted with respect to said head member,

and also the clause

> said head member and work-engaging member rotate relative to each other.

Claims 5 and 6 contain the following clause:

> a handle member having a longitudinally extending grip portion adjacent one end thereof, a work-engaging member pivotally supported adjacent the other end of said handle.

Claims 7 and 8 recite:

> A torque measuring wrench comprising, a handle member, a work-engaging member pivotally supported adjacent one end of said handle member.

The italicized portion of claim 3 and the quoted clauses from the other claims have been held inapplicable to appellant's wrench.

SUMMARY OF ARGUMENT

I. In appellant's wrench the work engaging member 10 is connected to the handle member 19, 22 solely by the flexible strip 12. This is not a pivotal connection or pivotal support. Consequently appellant is not entitled to make claims which recite pivotal connection or pivotal support.

An applicant who copies claims from an issued patent is not entitled to the allowance of such claims unless his application clearly discloses the subject matter recited therein. Far from meeting this requirement, appellant's application clearly lacks the necessary disclosure.

II. The claims now sought by applicant are not for the same invention as that sought to be protected in appellant's patent. The reissue statute quoted above provides only for the reissue on the same invention as that covered by the original patent.

III. Appellant's failure to present claims like those now sought, in his patent, was not due to inadvertence, accident, or mistake. Consequently he is not entitled to a reissue patent under the law.

ARGUMENT

I. Appellant's application does not disclose the subject matter claimed

The Zimmerman patent (App. 133), where the claims at bar originated, will be discussed first. It discloses several species of his wrench. The simplest form is that shown in Figs. 7 to 10 (App. 134). As shown the wrench comprises a handle 81 and a head member 80 rigidly connected at one end to the handle. At its other end the head has a boss 88 providing a bearing in which the stud 87 is rotatably mounted. The rotatable stud 87 has a shank 91 suitably formed to engage the nut which is to be turned or to engage the conventional wrench socket.

The rotatable stud 87 is rigidly connected at its top to one end of a flexible strip 92 and the other end of the strip is engaged between two adjustable abutment members 96 mounted in the head member. The outer end of the flexible strip 92 is connected to the stud 87 by placing it in a slot between two upstanding projections formed on the stud 87. The slot is in line with the axis of the stud 87. The construction is shown in Fig. 10. The connection is completed by means of the screws 93.

In operation the projection 91 is brought into engagement with the nut or bolt which is to be turned and the handle is manipulated. The force exerted on the handle is transmitted through the abutments 96 to the flexible strip 92, thence to the stud 87, and finally to the nut or bolt. When the nut begins to get tight more force must be exerted on the handle and the strip 92 will flex to an extent dependent on the amount of force applied to the handle. As the spring flexes the head 82, 83 will rotate to some extent on the stud 86, 87 (App. 142, col. 1, lines 69 to 73). Zimmerman provides the indicating means designated by the numerals 98 to 103. This mechanism need not be described since it has no bearing on the question before the Court.

Since the portion 88 of head 80 is rotatably mounted on the stud 87 it is submitted to be perfectly clear that the work engaging member 87 is pivotally supported in the head and handle member adjacent one end thereof, as required by Zimmerman's claims 33, 15, 12, and 34 to which appellant's claims 3, 5, 6, 7, and 8 correspond or substantially correspond.

It also seems perfectly clear that in Zimmerman the work-engaging member 87 is rotatably mounted with respect to the hand member 80 as his claim 28 (appellant's claim 4) states.

In the Zimmerman patent the phrases "pivotally supported," "pivotally connected," and "rotatably mounted" are accurately used in their ordinary sense.

Turning now to appellant's wrench as disclosed in his patent and reissue application, it will be clear that there is no pivoted connection, pivoted support or rotatable mounting anywhere, between the handle 22 and head 10. All the joints between the parts are rigid. (App. 130, col. 1, lines 7 to 10). The strip 12 flexes. But to say that the strip constitutes a pivotal connection or a rotatable mounting is to distort the accepted and true meaning of these words. Nowhere in his patent or in the specification of his reissue application did appellant use such terms or equivalent terms in describing his wrench. The reason is obvious. Such terms are not descriptive of appellant's wrench.

That such terms as "pivotally connected" are not applicable to appellant's structure is further shown by the dictionary definitions quoted in the examiner's statement (Rec. 436) as follows:

> The New Standard Dictionary defines the term pivot thus:
>
> "Mech. Something, typically a pin or short shaft, upon which a related part turns, oscillates or rotates; often a cylindrical bearing fixed on only one end, as for carrying a rotating or swinging part."
>
> Webster's New International is of the same import, to wit:
>
> "A point, fixed pin or short axis on the end of which something turns."

Knight's Mechanical Dictionary defines the term "pivot" as:

> "A short shaft or pintle on which a body oscillates or revolves."

In affirming the examiner's refusal of the claims on this ground the Board of Appeals of the Patent Office said: (Rec. 522):

> We have searched appellant's patent to determine whether the structure shown and described can be said to answer the terms of this group of claims insofar as this pivotal feature is concerned and we fail to find any mention therein of pivotal movement of the head or any other language which would indicate that appellant's wrench could be said to have a work-engaging member pivotally supported adjacent one end of the handle member or connected thereto. We therefore agree with the examiner that claims 3 to 8 are not readable upon the disclosure of appellant's device and it is therefore our conclusion that this ground of rejection is proper and should be sustained.

While it is true that appellant's wrench and that of Zimmerman have in common the feature of a flexible bar for transmitting the force from the handle to the work piece, that fact is not controlling because the claims call for another feature which Zimmerman does have and appellant does not have, namely, the pivoted or rotatable connection.

It is well established that one who copies claims from a patent granted to another, for the purpose of obtaining an interference, must have in his application a clear disclosure of the subject matter of said claims.

As was pointed out by the District Court in its Opinion (App. 12), the Supreme Court many years ago observed that,

> The courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration or to appropriate that which has in the meantime come into public use. *Railway Company* v. *Sayles,* 97 U. S. 554 at 563.

This principle has been followed uniformly by this Court.

In *Manly* v. *Williams,* 37 App. D. C. 194, this Court quoted from *Railway Co.* v. *Sayles, supra,* and said:

> The rule is the same as in reissue cases with respect to intervening rights. A patentee cannot in a reissue application so broaden his claims as to include an invention made subsequent to the grant of his patent.

Here appellant has not even yet, so far as the record shows, invented a wrench on which the claims at bar will read.

In *Cooper* v. *Downing,* 45 App. D. C. 345, this Court said:

> The burden is upon Downing to establish his right to extract from Cooper's patent the important feature of the issue, and before he will be permitted to do this he must clearly show that it can reasonably be read into his application and disclosure. This, we think, he has failed to do.

In *Lindley* v. *Shepherd,* 58 App. D. C. 31, 24 F. (2d) 606, this Court held that all doubts as to the right of an applicant to appropriate what has been granted in a patent to another, should be resolved against the applicant.

See also *Hauss* v. *Merrell,* 48 App. D. C. 433.

The principle has also been followed by the United States Court of Customs and Patent Appeals.

In *Brand* v. *Thomas,* 25 C. C. P. A. 1053, 96 F. (2d) 301, that Court said:

> The law is well settled that one who extracts claims from an issued patent must show a clear prior disclosure.

See also *Keeling* v. *Heid,* 28 C. C. P. A. 1008, 118 F. (2d) 571.

Appellant argues (Br. 22) on the authority of *In re Levy,* 55 App. D. C. 137, 2 F. (2d) 939, that doubts should be resolved in favor of an applicant copying claims from a patent. But there both the applicant and the patentee disclosed an apparatus in which high frequencies were used although the frequencies employed were different. The Court found that the phrase "predetermined high frequencies" was applicable to both.

This decision does not overrule the established rule of this Court that in cases of doubt the claim must be interpreted in the light of the disclosure of the patent where the claim originated and that limitations in a claim cannot be disregarded in determining the right of a party to make the claim.

In *Podelsak and Podelsak* v. *McInnerney,* 26 App. D. C. 399, this Court said:

> The meaning given to the counts of an interference must be that intended by the party to the interference first making them.

In *Chamberlin* v. *Kadow,* 54 App. D. C. 294, 297 Fed. Rep. 873, this Court made the same holding and said that it was proper to give the language of the claims its natural meaning and particularly the meaning intended by the patentee who drew them.

To the same effect were this Court's holdings in *Lindley* v. *Shepherd, supra;* in *Hoover* v. *Ooms,* decided January 14, 1946, 68 U. S. P. Q. 66, 153 F. (2d) 123; and in *Bendix Aviation Corp.* v. *Ooms,* decided January 14, 1946, 68 U. S. P. Q. 67, 153 F. (2d) 125.

See also *In re Heltzel,* 30 C. C. P. A. 1254, 137 F. (2d) 113, and *Pelzer* v. *Weaver,* 25 C. C. P. A. 1232, 97 F. (2d) 166.

It is submitted to be abundantly clear that the following finding made by the District Court was correct (App. 14, 15):

> Claims 3, 5, 7, and 8 require that the work-engaging member be pivotally supported adjacent one end of the handle member. Claim 4 requires that the wrench comprise a head member and a work-engaging member rotatably mounted with respect to the head member. Claim 6 requires that the work-engaging member be pivotally connected with an end of the handle member. None of these requirements is satisfied by the wrench disclosed in plaintiff's

> patent and reissue application. In plaintiff's wrench the work-engaging member is neither pivotally supported adjacent the handle, nor pivotally connected with the handle, nor rotatably mounted with respect to a head member.

Appellant calls attention (Br. 12) to the fact that another application by him which has matured into patent No. 2,385,591 (App. 152) and which discloses a wrench somewhat similar to that disclosed in his reissue application, contains language similar to that which has been held misdescriptive in his reissue application. It is conceded that the examiner's failure to object to the inaccurate language used in the patent was inconsistent with his action in the present case. The error of the examiner in failing to make objection may possibly be explained by the fact that the claims of the patent depend for their patentability on other mechanism than the flexible member connecting the handle to the head and the examiner's attention was occupied with the language reciting said other mechanism. Whatever the explanation may be there is no ruling or statement in the record of that patent to the effect that the examiner regarded the language as appropriate.

The fact that the language is inappropriate in the present case cannot be altered by the examiner's failure to object to it in the other case. The mistake made by the examiner in the other case would not be remedied by repeating the mistake here.

The lower Court (App. 13) properly refused to give any weight to the examiner's erroneous omission to object to the language of the other case.

II. The appealed claims are not for the same invention as the claims of appellant's patent

It is evident that the two claims (App. 132) of appellant's patent, to which the present case relates, are directed to the two-piece handle 22^a, 23^a shown in Fig. 4 only. The appealed claims of the reissue application not only omit the recitation of a two-piece construction of the handle but are directed to other features purportedly shown at the other end of the wrench, which are not recited in the two claims of the patent. It would seem clear, therefore, that the specific features now claimed were not intended to be covered by, and are a different invention from that covered by the claims of the patent.

A reissue and an original patent are for the said invention if—

> * * * the reissue fully describes and claims the very invention intended to be secured by the original patent; if the reissue describes and claims only those things which were embraced in the invention intended to have been secured by the original patent; if the broader claims in the reissue are not merely suggested or indicated in the original specification but constitute parts or portions of the invention which were intended or sought to be covered or secured by the original patent. The required intention does not appear if the additional matter covered by the claims of the reissue is not disclosed in the original patent. If there be failure of disclosure in the original patent of matter claimed in the reissue, it will not aid the patentee that the matter covered by the reissue was within his knowledge when he

> applied for his original patent. And it is not enough that an invention might have been claimed in the original patent because it was suggested or indicated in the specification. It must appear from the face of the instrument that what is covered by the reissue was intended to have been covered and secured by the original. *U. S. Industrial Chemicals, Inc.* v. *Carbide and Carbon Chemicals Corp.,* 315 U. S. 668.

That appellant did not intend his patent claims to cover the details now recited is indicated by the history of prosecution of his original application which will be discussed later.

Since the reissue statute, Sec. 4916 R. S. quoted above, authorizes the granting of a reissue only for the "same invention" as that of the patent, it is submitted that appellant's reissue application does not qualify under the statute.

III. Inadvertence, accident, or mistake

The reissue statute quoted above permits the granting of a reissue patent only if the error in the original patent "has arisen by inadvertence, accident, or mistake." Rule 87 of the Rules of Practice relating to reissue applications reads as follows:

> Applicants for reissue, in addition to the requirements of the first sentence of rule 46, must also file with their petitions a statement on oath as follows:
>
> (*a*) That applicant verily believes the original patent to be inoperative or invalid, and the reason why.

> (*b*) When it is claimed that such patent is so inoperative or invalid "by reason of a defective or insufficient specification," particularly specifying such defects or insufficiencies.
>
> (*c*) When it is claimed that such patent is inoperative or invalid "by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new," distinctly specifying the part or parts so alleged to have been improperly claimed as new.
>
> (*d*) Particularly specifying the errors which it is claimed constitute the inadvertence, accident, or mistake relied upon, and how they arose or occurred.
>
> (*e*) That said errors arose "without any fraudulent or deceptive intention" on the part of the applicant.

The oath accompanying appellant's reissue application (R. 338 to 343) stated that the "insufficiency" in his patent consisted in the failure to include the claims now sought, that the omission of such claims arose through inadvertence, accident or mistake because appellant was not skilled in the construction or meaning of patent claims, and that the error arose from appellant's failure to observe the unnecessary limitations in the claims and the omission of claims such as he now seeks.

Such an oath, it is submitted, fails to meet the requirements of the statute and the rule. A somewhat similar oath drew the following comment in the case of *Union Switch & Signal Co.* v. *Louisville Frog, Switch & Signal Co.*, CCA 6, 73 F. (2d) 550, 24 USPQ 102:

> Solely upon this oath the Commissioner granted the reissue. It was manifestly inadequate. As a matter of law there was no evidence that the failure originally to claim the invention in the language of the reissue claims had "arisen by inadvertence, accident, or mistake * * *" upon the part of the applicants, their attorney or the Commissioner. The oath failed to comply with Rule 87 (d) of Patent Office Practice requiring that it should particularly specify "the errors which it is claimed constituted the inadvertence, accident, or mistake relied upon and how they arose or occurred." In the absence of facts from which the Commissioner could ascertain what "inadvertence, accident, or mistake" resulted in the insufficient claims he was without authority to grant the reissue. His only power to grant a reissue is found in Revised Statutes, Sec. 4916.

To the same effect was *General Radio Co.* v. *Allen B. DuMont Laboratories, Inc.,* CCA3, 129 F. (2d) 608, 53 USPQ 490.

It may be as appellant testified (App. 56, 57) that he did not realize that the claims of his patent had been limited to a two-piece handle construction, but it is clear that his attorneys realized this and deliberately canceled all the broader claims of the application in order to obtain the allowance of the two claims appearing in the patent.

The record of appellant's original application shows that on September 21, 1938 (Rec. 225–228), appellant's attorneys amended claims 10 and 11 (claims 1 and 2 of the patent) to include the limitations as to the two piece handle and they clearly indicated in their remarks (Rec. 233) accompanying the amendment that they understood the limitations introduced into these claims. These claims were then allowed by the examiner (Rec. 237) but the remaining claims were rejected. After further prosecution, including an unsuccessful appeal to the Board of Appeals, appellant's attorneys (Rec. 310) cancelled all the claims in the application except said allowed claims 10 and 11 and asked that the patent be issued with these two claims. The patent was issued on May 19, 1942, after the application had been prosecuted over 4 years.

The deliberate acts of appellant's attorneys in protracted proceedings in the Patent Office leading to the issue of a patent cannot be treated as the result of inadvertence, accident or mistake. *Grand Rapids Show Case Co.* v. *Baker et al.*, C. C. A. 6, 216 F. (2d) 341.

"Nor will it do for the applicant to say that the fault was that of his solicitors in drawing the original claims. They were his agents and he is bound by their acts." *In re Schneider,* 49 App. D. C. 204, 262 Fed. Rep. 718.

A further fact, which would seem conclusively to show that there was no inadvertence, accident or mistake, is that appellant failed to disclose in his original application the pivotal connection or support recited in the appealed claims. His failure to claim what he did not show could not have been inadvertent.

In *U. S. Industrial Chemicals, Inc.* v. *Carbide and Carbon Chemicals Corp., supra, the* Supreme Court said:

> The required intention does not appear if the additional matter covered by the claims of the reissue is not disclosed in the original patent.

This Court in *Booth Fisheries Corp.* v. *Coe,* 72 App. D. C. 195, 114 F. (2d) 462, said:

> The failure of the application to disclose the concept of freezing between two flat refrigerating surfaces is so plain as almost to compel the inference that it was not due to inadvertence, accident or mistake.

CONCLUSION

Each of the three grounds, I, II, and III, discussed above would alone be sufficient to require the rejection of appellant's reissue application. Although the Court below ruled only on Ground I, it is submitted that all of the grounds are valid, and that the Judgment should be affirmed.

Respectfully submitted.

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JUNE 1946.

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JOINT APPENDIX

IN THE

United States Court of Appeals

DISTRICT OF COLUMBIA.

No. 9204

PAUL A. STURTEVANT, *Appellant*

v.

CASPER W. OOMS, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

United States Court of Appeals
for the District of Columbia

FILED MAY 15 1946

Joseph W. Stewart
CLERK

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

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IN THE

United States Court of Appeals

DISTRICT OF COLUMBIA.

No. 9204.

PAUL A. STURTEVANT, *Appellant*

v.

CASPER W. OOMS, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

JOINT APPENDIX.

I.

PLEADINGS, DOCKET ENTRIES AND OTHER PAPERS.

1 Filed Dec 13 1943

In the District Court of the United States for the District of Columbia

Civil Action No. 22403

Paul A. Sturtevant, Elmhurst, Illinois, *Plaintiff,*

v.

Conway P. Coe, Commissioner of Patents, Washington, D. C., *Defendant.*

Bill of Complaint Under Section 4915 United States Revised Statutes.

To the Honorable the Justices of the above Court:

The plaintiff states as follows:

1. The plaintiff, Paul A. Sturtevant, is a citizen of the United States and a resident of Elmhurst in the County of Du Page and State of Illinois, and brings this suit in his own right.

2. The defendant, Conway P. Coe, is the Commissioner of Patents of the United States, a legal resident of the District of Columbia and is sued as Commissioner of Patents of the United States.

3. This bill is filed in accordance with the provisions of the Federal laws of the United States as provided for under Section 4915, Revised Statutes (Comp. Stats. 9460; U. S. C. Title 35, Section 63), as amended by the Act of March 2, 1927.

4. The plaintiff, Paul A. Sturtevant, filed in the United States Patent Office on March 16, 1943, an application for a reissue of United States Letters Patent No. 2,283,707 granted to him on May 19, 1942, for Torque Wrenches, which application was given the Serial No. 479,300.

2 5. That said application was filed in accordance with the laws of the United States and the rules of the Patent Office.

6. That said application has been passed upon by the Primary Examiner of the Patent Office who allowed two of the claims, but refused to allow the following claims:

3. A torque measuring wrench comprising a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, a normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end arranged to have a force applied thereto through said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

4. A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted with respect to said head member and having a portion provided with an opening, said opening extending in a direction transverse to the axis of rotation of said work-engaging member and lying across said axis, an elongated flexible spring bar having one end thereof securely mounted in said opening and having its opposite end connected to said head member for yieldably opposing relative rotary movement of said head member and work-engaging member, and indicating means operable by said work-engaging member as said head member and work-engaging member rotate relative to each other for indicating the force applied to the work through said members and spring bar.

5. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member having a longitudinally extending grip portion adjacent one end thereof, a work-engaging

member pivotally supported adjacent the other end of said handle, the pivotal axis of said work-engaging member coinciding with the axis of rotation of the work, a normally straight spring bar disposed in radially aligned end to end relation to said grip portion and said work-engaging member, said spring bar having one end thereof fixably connected to one of said members and its other end engaged with the other of said members, whereby there is provided a constant moment arm and pressure applied to said grip portion is transmitted to the work through said handle member, thence forwardly through said spring bar and finally through said work-engaging member.

3 6. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member having a grip portion adjacent one end thereof, a work-engaging member pivotally connected with the other end of said handle member, said work-engaging member having means through which it may be connected with the work, which means is located substantially on the pivotal axis of said work-engaging member, and a normally straight spring bar carried by said work-engaging member, and extending away from and in substantially radial alignment with the said work-engaging member, said spring bar being positioned between the axis of said pivot and said grip portion, said handle member having means engaging said spring bar at a predetermined distance from the axis of rotation of said work-engaging means and at a point between said work-engaging means and said grip portion to provide a substantially constant moment arm, whereby when a rotary force is applied to said grip member the same will be transmitted through said handle member to said spring bar and through said spring bar to said work-engaging member.

7. A torque measuring wrench comprising, a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, a normally straight spring bar yieldably opposing relative rock movement of said work-

engaging member and said handle member, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end connected in pivotal relation with said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

8. A torque measuring wrench comprising a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, a normally straight spring bar yieldably opposing relative rock movement of said work-engaging and said handle members, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end pivotally connected with said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

9. A torque measuring wrench comprising a work-engaging member adapted to rotate with the work, a handle member, a normally straight spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end arranged to have a force applied thereto through said handle member, said spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

10. A torque measuring wrench comprising a head member, a work-engaging member adapted to rotate with the work and having a portion provided with an opening, said opening extending in a direction transverse to the axis of rotation of said work-engaging member and lying across

said axis, an elongated flexible spring bar having one end thereof securely mounted in said opening and having its opposite end connected to said head member for yieldably opposing relative rotary movement of said head member and work-engaging member, and indicating means operable by said work-engaging member as said head member and work-engaging member rotate relative to each other for indicating the force applied to the work through said member and spring bar.

11. A torque measuring wrench comprising a work-engaging member adapted to rotate with the work, a handle member, a normally straight spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end pivotally connected with said handle member, said spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

7. The applicant appealed from the decision of the Primary Examiner to the Board of Appeals who affirmed the rejection of the Primary Examiner of the above claims in their decision dated October 13, 1943 and in their decision on rehearing dated November 26, 1943 reversed in part the grounds for rejection, but persisted in finally rejecting said claims.

8. The Commissioner of Patents by the Board of Appeals contends:

(a) that claims 3 to 8, inclusive, are not readable upon the disclosure of plaintiff;

(b) that claims 9 to 11, inclusive, are unpatentable over Kennedy No. 1,728,552 dated September 17, 1922;

5 (c) that claims 9 to 11, inclusive, are unpatentable in the reissue application of plaintiff for lack of inadvertence; and

(d) that claims 3 to 11 are for a different invention from that covered in the claims of plaintiff's original patent No. 2,283,707.

9. The plaintiff disagrees with these contentions of the Commissioner of Patents and contends that claims 3 to 8, inclusive, read upon his disclosure, that Kennedy fails to disclose the novel Torque Wrench covered by the subject matter of claims 9 to 11, inclusive, and that aside from the fact that this prior patent fails to disclose plaintiff's novel Torque Wrench, the Commissioner of Patents has inequitably rejected these claims 9 to 11, inclusive, upon this prior patent although he allowed the same subject matter to a patentee, Zimmerman, in his patent No. 2,283,888, copending with and issued the same day as plaintiff's original patent, and said Kennedy was a reference of record before the Commissioner of Patents in the prosecution of the application of Zimmerman. Plaintiff further contends that claims 9 to 11, inclusive, are wrongfully rejected for lack of inadvertence, and further contends that claims 3 to 11, inclusive, are for the same invention as the invention described and claimed or intended to be claimed in the original application, and that the doctrine of same invention applies not to the claims of the original patent, but to the invention described and claimed or intended to be claimed in the
original application. Plaintiff further contends that
6 the rejection of claims 9 to 11, inclusive, for lack of
inadvertence on the ground that they are for the same subject matter as cancelled original claim 6 is palpably inconsistent with the rejection that the same claims cover a different invention from that described and claimed or intended to be claimed in the original application.

10. That plaintiff further states that the said invention is new and useful and was not known or used by others in this country before his invention thereof and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application Serial No. 198,375, which resulted

in his original patent No. 2,283,707, and not in public use or on sale in this country for more than two years prior to said application Serial No. 198,375, and not patented in any foreign country by him or his legal representatives on an application filed more than twelve months prior to said application for United States Patent and not abandoned.

11. The said decisions of the Board of Appeals dated October 13, 1943 and November 26, 1943 are within six months last past, and no appeal has been taken from said decisions of the Board of Appeals to the United States Court of Customs and Patent Appeals, and no such appeal is pending or has been decided.

Wherefore, the plaintiff, Paul A. Sturtevant, prays that this Honorable Court determine that plaintiff is entitled to the grant of reissue letters patent on said application Serial No. 479,300, embodying said claims 3 to 11, inclusive, and that this Honorable Court authorize and direct the Commissioner of Patents to issue to plaintiff reissue letters patent of the United States embodying said claims 3 to 11, inclusive, upon the filing in the United States Patent Office of a certified copy of such adjudication and upon
7 compliance with the requirements of the law for such cases made and provided.

PAUL A. STURTEVANT
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BERTRAM WM. COLTMAN
Of Counsel
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* * * * * * * * * *

8 Filed Jan 15 1944

Answer to the Complaint.

To the Honorable the Justices of the District Court of the United States for the District of Columbia.

1. Defendant admits the allegations of paragraph 1.

2. He admits the allegation of his official position and that he is sued in his official capacity. He denies that he is a legal resident of the District of Columbia, his legal residence being in the State of Maryland. He states that his official residence is in the District of Columbia.

3, 4, 5, 6, 7, 8. He admits the allegations of paragraphs 3 to 8, inclusive.

9. He admits that plaintiff disagrees with the decision of the Board of Appeals in rejecting claims 3 to 11, inclusive, of plaintiff's application No. 479,300, for reissue of his patent No. 2,283,707. He admits that plaintiff makes the contentions set out in paragraph 9 but he denies such 9 contentions. Defendant states that plaintiff is not lawfully entitled to receive a reissue patent containing claims 3 to 11, inclusive, for the reason that claims 3 to 8, inclusive, are not readable on the disclosure made in plaintiff's said application, for the reason that claims 9, 10 and 11 are unpatentable in view of the following prior patents:

Keeler,	832,064	October	2,	1906,
Kennedy et al.,	1,728,552,	Sept.	17,	1929,
Ketcham,	1,846,734	Feb.	23,	1932.

profert of copies of which is hereby made, for the reason that claims 5 to 11, inclusive, are not for the same invention as that claimed in plaintiff's original patent, for the reason that plaintiff's omission to present in his original application claims corresponding to claims 3 to 11, inclusive, was not due to inadvertence, accident or mistake such as is required by Section 4916 R. S. to justify the reissue of a patent, and for the reasons given in the statement of the examiner in answer to the appeal and the decision of the Board of Appeals, copies of which will be furnished at the trial.

10. He admits that in said application plaintiff made averments corresponding to the allegations of paragraph 10, but denies for reasons aforesaid, that said allegations would justify the reissue of plaintiff's patent with claims 3 to 11, inclusive.

11. He admits the allegations of paragraph 11.

W. W. COCHRAN,
Solicitor, U. S. Patent Office,
Attorney for Defendant.

January 14, 1944.

* * * * * * * * * *

191 **Order of the Court.**

The Court: This is an action by Paul A. Sturtevant under Section 4915 of the Revised Statutes against the Commissioner of Patents to compel him to grant a reissue patent on an application filed by the plaintiff on March 16, 1943, Serial No. 479,300, for the reissue of Letters Patent No. 2,283,707 granted on May 19, 1942.

The alleged invention is a manually operated torque wrench used for the purpose of tightening bolts and similar devices.

The plaintiff had previously received a patent on the same device.

The application for the reissue here involved the same specification as the original patent but seeks broader claims than is found in the latter.

It is asserted that plaintiff's wrench has been favorably received on the market.

A rival concern appears to have entered on the manufacture and sale of the same instrument in competition with the plaintiff's assignee. Then it was that the plaintiff appears to have discovered that the claims of the original patent did not adequately protect his invention, and
192 the present application for reissue followed.

The Patent Office having rejected this application the present action was instituted.

At the trial the plaintiff limited the case to claims 3 to 8, inclusive.

The principal ground of rejection was that the claims do not read on the disclosure.

The device disclosed in the specifications consist of a handle, a spring bar, and a work-engaging member, all forming a single continuous structure to which is attached a pointer and a scale for the purpose of measuring force applied to the work.

The claims refer to the work-engaging member as being pivotally supported.

The Commissioner of Patents takes the position that no pivotally supported member is disclosed in the specifications, and this is the crux of the case.

The plaintiff counters by asserting that the claim is met by the fact that in actual operation the spring is flexed against the work-engaging member, and that, therefore, the spring bar pivots on the work-engaging member.

The Commissioner of Patents, in effect, argues that this is a distortion of the manifest meaning of the phrase "pivotally supported" as used in the claims.

This phrase certainly seems to the Court to convey
193 the concept of a pivotal connection between two members of the patented device.

The meaning sought to be ascribed to this phrase by the plaintiff seems somewhat far-fetched. Under any circumstance this Court must not be unmindful of the principle that the action of the Patent Office, like that of any other administrative agency, is presumed to be correct, and that the burden is on the plaintiff asserting the contrary to overcome this presumption. This has not been done by the plaintiff in this case.

The plaintiff, however, calls attention to the fact that his claims in the reissue application were copied by him from a patent to one Zimmerman, No. 2,283,888, issued on May 19, 1942, and covering substantially the same invention.

The Zimmerman patent, however, discloses the pivotal connection between two members of the patented structure, while the Sturtevant application does not. In one case the claims read on the disclosure. In the other they do not.

The plaintiff's purpose in copying Zimmerman's claims appear to have been to secure a declaration of interference between the Zimmerman patent and the plaintiff's application.

Apparently the Zimmerman patent is owned by the competing concern. It may well be that unless the claims in the suit are granted to the plaintiff he may be deprived of the opportunity which he evidently seeks of asserting a prior right to patent on the wrenches manufactured by him and by his competitor. 194

This result would undoubtedly be unfortunate from the plaintiff's standpoint, but this possibility does not constitute a valid ground for granting him claims on something which he does not show in his specification.

The Supreme Court many years ago observed that:

> "The courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration or to appropriate that which has in the meantime come into public use. Railway Company vs. Sayles, 97 U. S. 554 at 563."

It is not intended to suggest that the plaintiff is endeavoring in this action to appropriate any invention made by anyone else than himself. This admonition is referred to, however, for the purpose of indicating the reason for strictly adhering to the principle that the scope of an application once filed or of a patent once granted should not be enlarged lest inaptly perhaps someone else's invention or some device in the public use may be brought within the scope of the patent.

195 The plaintiff calls attention to the fact that on September 25, 1945, he was granted letters patent No. 2,385,591 covering an improvement of the torque wrench and that in this application he was permitted to attach to the phrase "pivotally supported" the meaning which he seeks to attach to the phrase in this action.

He contends that this action of the Patent Office made it incumbent on that Office to permit him successfully to contend that the claim reads on the disclosure in this instance.

No evidence has been introduced to show why the Patent Office changed its position. This, however, is a matter of no concern to the Court.

It is a well-established principle of law that the Government may not be estopped by the acts of its agents or employees, and even if an estoppel could run against the Government no evidence of an equitable estoppel is present in this case. Therefore, the Court does not deem that the Patent Office in its ruling on the reissue application was precluded from changing its position as to the proper meaning of the phrase "pivotally supported."

In the light of the conclusion reached by the Court it does not seem necessary to pass upon the contention as to whether in this case there was present any accident, inadvertence, or mistake, within the meaning of Section
196 4916 of the Revised Statutes relating to reissue applications.

Judgment for the defendant. Counsel will submit draft of proposed findings of fact and conclusions of law.

* * * * * * * * * *

11 Filed Oct 26 1945

Findings of Fact.

1. This is an action under Section 4915 R. S. (U. S. C., title 35, sec. 63) in which plaintiff seeks a judgment which would authorize defendant, the Commissioner of Patents, to issue to plaintiff a patent containing claims 3 to 8, inclusive of plaintiff's reissue application No. 479,300, en-

titled "Torque Wrenches", which was filed in the Patent Office on March 16, 1943. The application is for a reissue of plaintiff's patent No. 2,283,707, which issued on May 19, 1942.

2. The Complaint included also claims 9, 10 and 11 of plaintiff's application but plaintiff withdrew these claims at the trial.

3. Plaintiff's wrench, as disclosed in his patent and in his reissue application at bar, consists of the following parts: a work engaging member adapted to turn a bolt or nut, a flexible metallic strip or bar rigidly connected at one end to the work engaging member, a handle rigidly connected to the other end of the flexible metallic strip or bar, and a rigid pointer member rigidly connected to the work engaging member and extending over a scale carried by
12 the handle to indicate the amount of flexure of the
flexible metallic strip resulting from force exerted on the handle in tightening the bolt or nut. In one of the several species of the device the handle member consists of two parts pivotally connected together.

4. The two claims of plaintiff's patent are limited in their scope by the recitation therein of the two-part handle.

5. The uncontroverted evidence is that when plaintiff's patent was issued he did not realize that the two claims thereof were so restricted as to cover only a wrench having a two-part handle.

6. Claims 3, 4, 5 and 6 at bar are copies of claims 33, 28, 15 and 12, respectively, of the patent to Zimmerman, No. 2,283,888, which issued on May 19, 1942, on an application filed in the Patent Office on November 22, 1937. Claims 7 and 8 at bar are modifications of claim 34 of said Zimmerman patent. These claims were presented by plaintiff for the purpose of obtaining the declaration of an interference between his reissue application and the Zimmerman patent.

7. Claims 3, 5, 7 and 8 require that the work-engaging member be pivotally supported adjacent one end of the handle member. Claim 4 requires that the wrench comprise

a head member and a work-engaging member rotatably mounted with respect to the head member. Claim 6 requires that the work-engaging member be pivotally 13 connected with an end of the handle member. None of these requirements is satisfied by the wrench disclosed in plaintiff's patent and reissue application. In plaintiff's wrench the work-engaging member is neither pivotally supported adjacent the handle, nor pivotally connected with the handle, nor rotatably mounted with respect to a head member.

8. None of claims 3 to 8, inclusive, of plaintiff's reissue application is patentable to him.

Conclusions of Law.

1. Plaintiff is not lawfully entitled to have his patent No. 2,283,707 reissued to include any of claims 3 to 11, inclusive, of his reissue application.

2. The Complaint should be dismissed with costs against plaintiff.

ALEXANDER HOLTZOFF
Justice.

* * * * * * * * * *

14 Filed Oct 26 1945

Judgment.

This action came on to be heard at this term and thereupon upon consideration thereof, it is this 26th day of October, 1945,

ADJUDGED that the complaint be and it is hereby dismissed, with costs against the plaintiff.

ALEXANDER HOLTZOFF
Justice.

Approved as to form:

EDWIN R. HUTCHINSON
Attorney for Plaintiff.

* * * * * * * * * *

II.

EXCERPTS FROM TESTIMONY AND PROCEEDINGS.

19 Opening Statement on Behalf of the Plaintiff.

Mr. Coltman: If the Court please, this suit is brought by the plaintiff, P. A. Sturtevant of Chicago, Illinois, under Section 4915 of the Revised Statutes, and it involves his reissue application Serial No. 479,300, filed March 16, 1943, on his original Patent No. 2,283,707 issued May 19, 1942, on torque wrenches on an application Serial No. 198,375 filed by the plaintiff March 28, 1938.

The claims in the suit before the Court are reissue claims 3 to 11, inclusive. They have been finally rejected by the Patent Office on four grounds.

The first ground of rejection is that reissue claims 3 to 8, inclusive, do not read upon the disclosure of plaintiff's original patent of his reissue application. The case before the Court is a reissue application.

The Court: I so understand.

20 Mr. Coltman: Ground No. 2, that reissue claims 9 to 11 are unpatentable over the prior art.

The Court: Just a moment, if you will pardon me. Which are the claims that were rejected because they do not read upon the disclosure?

Mr. Coltman: Reissue claims 3 to 8, inclusive, and reissue claims 9 to 11, inclusive, as not patentable over the prior art.

The Court: Proceed.

Mr. Coltman: The third ground of rejection is that reissue claims 3 to 11, inclusive, are for a different invention from that covered by the claims of applicant's original patent.

Ground 4 is, according to the examiner of the Patent Office, that claims 3 to 11 are rejected because of lack of inadvertence, accident, or mistake as a requisite to a reissue in Section 4915 of the Statutes providing for the filing of a reissue application.

However, I wish to call Your Honor's attention, if I may please, to the fact that the Board of Appeals of the Patent Office in a supplemental decision on plaintiff's petition for reconsideration of its first decision in this case changed ground No. 4 to read that only claims 9 to 11 are rejected on the ground of inadvertence, taking claims 3 to 8 out of that ground 4.

21 The Court: Then I am not interested in what the primary examiner did, so the only question before me on this fourth ground is whether claims 9 to 11 are to be rejected on that ground.

Mr. Coltman: On the ground of inadvertence, accident, or mistake.

The Court: You may proceed.

Mr. Coltman: The Solicitor of Patents, Mr. Cochran here, was notified five days ago this Monday definitely that the plaintiff would withdraw claims 9 to 11 in this case, if he may with the permission of the Court, so that the only claims before the Court now are claims 3 to 8, inclusive, and the two grounds which cover claims 3 to 8.

The Court: Then we have wasted a lot of time, haven't we?

Mr. Coltman: I just wanted to cover it so that Mr. Cochran will know and the record will be clear that we withdraw claims 9 to 11.

Mr. Cochran: I would like to be clear at this time too that the ground of lack of inadvertence, accident and mistake has not been withdrawn with regard to claims 3 to 8.

The Court: Of course you will have an opportunity to make your opening when your adversary finishes.

You are withdrawing claims 9 to 11?

Mr. Coltman: Yes, sir.

22 The Court: Then we do not need to discuss them at all.

Mr. Coltman: We are not discussing them and we will simplify the issues by confining this case to claims 3 to 8, and therefore as I say ground 3 applies as it pertains to claims 3 to 8—

The Court: Mr. Cochran states that you are in error in assuming that ground No. 4 does not apply to claims 3 to 8. Is that your position?

Mr. Cochran: Yes, Your Honor. If Your Honor will refer to paragraph 9 of the answer I think it will be clear that all the claims 3 to 11 were included in the answer as being properly rejected and not patentable to plaintiff because of failure to show inadvertence, accident, or mistake.

The Court: You are not confining yourself to the ruling of the Board of Appeals?

Mr. Cochran: No, but if they did omit that ground it is included in the answer and I am not omitting it.

The Court: I take it the Patent Office is not confining an action on 4915 to the specific grounds on which the patent was rejected by the Patent Office, and in view of that statement of Mr. Cochran I think we should assume that the fourth ground is also involved here.

Mr. Cochran: That is my position.

The Court: I will proceed accordingly then if that meets the position of the Solicitor of Patents.

23 Mr. Coltman: I wish to call to the Court's attention the fact that there has been some delay in bringing this case to trial. The suit was filed—

The Court: I think we can get right down to the issues.

Mr. Coltman: I just wanted to call the attention of the Court to a particular matter, that when this case was originally filed—

The Court: If you think it is important for the Court to know you may state it.

Mr. Coltman: I would like to have it in the record.

The jurisdiction of this Court was challenged by the Solicitor of Patents.

He filed a motion to dismiss based upon the decision of Hoover vs. Coe, 144 Federal 2d 514. The Supreme Court of the United States entertained a petition for a writ of certiorari and passed upon the question whether or not this Court had jurisdiction.

The Court: What was the ground briefly, in a sentence, of the lack of jurisdiction?

Mr. Coltman: The lack of jurisdiction was that Section 4915 provides that if this Court should find that the plaintiff is entitled to his claims in issue in the case that the Court will direct the Commissioner of Patents to issue a patent.

24 But in Hoover vs. Coe claims were copied from a patent for the purpose of an interference, the same as in this case. A reissue application was involved, the same as in this case, and it was the position of the Court of Appeals of the District of Columbia in passing on that case that inasmuch as the Court could not direct the patent to issue, because the plaintiff had to go back in the Patent Office to contest the question of priority of invention with another party, and the plaintiff may not win that interference, then the Court's decree would become a nullity.

The Court: Will you state what the jurisdictional point was?

Mr. Coltman: That was the jurisdictional—

The Court: Will you state it briefly? What was it?

Mr. Coltman: Briefly, that where a plaintiff seeks to make claims on a patent for interference he cannot bring an action under Section 4915 because the Court's decree could not be carried out.

The Court: You mean he could not do so during the pendency of interference?

Mr. Coltman: That is right.

The Court: I see.

Mr. Coltman: And the Supreme Court overruled the Court of Appeals and held that this Court had jurisdiction.

The Court: I do not think that is material. The case is here for trial.

25 Mr. Coltman: That is right. As I have said, this case involves a reissue application, and I would like to read to the Court that portion of Section 4916 applying to the grant of a reissue.

The Court: Do not read the statute to me. You can state it very briefly and paraphrase it if you wish, but the Court is familiar with that statute.

Mr. Coltman: The statute provides that where there is inadvertence, accident, or mistake a party may return to the Patent Office, a patentee, and ask for reissue of his patent.

The Court: Yes, I am familiar with it.

Mr. Coltman: Provided there is no fraudulent or deceptive intention on the part of the patentee to secure the reissue application or patent.

The statute specifically says that the error shall arise as a result of inadvertence, accident, or mistake; and second, that the invention sought to be covered by the reissue shall be for the same invention.

The Court: The Court is familiar with the statute.

Mr. Coltman: I just thought, in order to give the proper background to this case, I would refer to several cases at this time as to what constitutes inadvertence, accident and mistake under this section of the statute.

Justice Bradley in Miller vs. Brass Co., 104 U. S. 350, said:

26

> "If the patentee who had no corrections to suggest in his specification except to make his claim broader and more comprehensive, uses due diligence in returning to the Patent Office, and says 'I omitted this,' or 'My solicitor did not understand that,' his application may be entertained, and, on a proper showing, correction may be made."

And the noted jurist, Judge Denison, of the Sixth Circuit Court of Appeals, in American Automotoneer Co. vs. Porter, 232 Fed. 456, said as to inadvertence:

> "We thus see that, apparently, the statutory inoperativeness, insufficiency, and inadvertence may exist, even though the only correction to be made is to broaden the claims by omitting unnecessary limita-

> tions, and that the particular invention first claimed in the reissue, may be sufficiently disclosed in the original merely by specification and drawing, and without express verbal reference thereto.''

We wish to point out in this case that the invention covered by the reissue claims is shown in the original patent to be the invention that the patentee, the plaintiff here, intended to claim, but he failed to claim it, and therefore the invention covered by the reissue claims 3 to 8 is for the same invention as contained in the original patent.

27 I shall be pleased, if Your Honor wishes, to give you a memorandum of these authorities that I have referred to later.

The Court: No. I try to dispose of matters at the conclusion of the trial, and I have noted the cases you have cited and I will look them over during the week-end.

Mr. Coltman: Another authority is that of the Ninth Circuit Court of Appeals in Perfection Disappearing Bed Co., Inc. vs. Murphy Wall Bed Co., 206 Fed. 698:

> '' * * * the words 'inadvertence or mistakes' are used in the statute as the antitheses to 'fraudulent intent,' and that in the absence of fraud the failure of an inventor or his solicitor to put the claims in such form as will cover the entire invention is 'inadvertence,' within the meaning of the statute * * * ''

The Court: That sort of takes the customary meaning of the word ''inadvertence'' out of it, does it not?

Mr. Coltman: Well, that has been the ruling of the Court in these cases of inadvertence, that if the solicitor or the patentee fails, without any fraudulent intent, to cover the invention he was trying to cover, he is given the opportunity under Section 4916 to go back to the Patent Office—

The Court: Of course that is not inadvertence in the common acceptance of the meaning of ''inadvertence.''

28 Mr. Coltman: Well, it is in this particular case, if Your Honor please.

I know Your Honor would appreciate being referred to, I think, the outstanding and leading case of the Court of Appeals of the District of Columbia on this question. That is in re Briede. My citation is 1906 C. D. 677.

The Court: This is a Court of Appeals case?

Mr. Coltman: Yes, sir.

The Court: What is the Court of Appeals citation?

Mr. Coltman: I will have to provide that.

The Court: Give either that or the Federal Reporter, or both. Is that a recent case?

Mr. Coltman: 1906.

The Court: Then it has been reported?

Mr. Coltman: Yes.

The Court: Perhaps you can get the citation at the luncheon recess. Perhaps you can let me have it before the luncheon recess. I want to get what you claim to be the leading case in this jurisdiction.

Mr. Coltman: We will get it for Your Honor. There the Court said:

> "Had the claim in controversy been submitted while the application for the original patent was pending we cannot believe that it would have been refused as not being for the same invention as that described and shown. If so it would have been a manifest error.
> 29 Rather, we think, the Office approached its consideration with the idea that it was an unwarranted attempt to obtain a broadened claim by means of a reissue, and with the mistaken idea that such a reissue was not permissible. The construction placed upon the patent statutes by the courts is favorable toward inventors having meritorious inventions and they do not put upon them harsh or technical interpretations."

The Court: Are not you really predicating your case upon the word "mistake" in the statute rather than "inadvertence"?

Mr. Coltman: They are synonymous, I think, Your Honor.

The Court: I do not believe the two words are synonymous, and certainly those are words of common usage, but it does not make any difference because the statute covers both.

Mr. Coltman: The two questions, I believe, before the Court as concerning the requirements of the statute, are whether the invention covered by the reissue claims are for the same invention; and second, whether there has been inadvertence, accident and mistake within the meaning of the statute.

May I say that the reissue application of plaintiff contains the same drawing and the same specification? Both are identical and they have not been changed.

The subject matter, if the Court please, is a torque wrench. I have two samples of these wrenches as commercial products. May I present them to the Court so that he may have them before him while I talk to you?

(Counsel hands two wrenches to the Court.)

I have another one, if the Court please, which is a larger one. It is also one of the commercial forms. They are sold by the plaintiff and embody the invention here in issue.

If the Court please, I will take the small one first, or I will take this intermediate size.

It comprises two relatively movable members. One of the members is a work-engaging member, if the Court please, this part here (indicating).

That engages the bolt, the stud, or fastening member that is to be tightened by this wrench.

The other member is a handle member, or a head member. That is from this point (indicating) out to the handle.

The Court: You mean the little handle?

Mr. Coltman: That is correct, and also the enlarged portion directly in front of the plastic handle.

The Court: You mean the little plate?

Mr. Coltman: The plate and the under portion carrying the plate.

The Court: And what is this (indicating)—tongue shall I say?

31 Mr. Coltman: That is a pointer. I will get to that.

Between these two members is disposed a flat spring bar.

The work-engaging member carries a pointer, and the head, or handle member, carries a gauge, so that when the work-engaging member is inserted upon the bolt, or screw, to be tightened the screw or bolt will be turned until it is tight enough to overcome the resistance of the spring bar, and from that point on the workman may determine the exact torque, or force, that may be applied to this fastening member.

Continued movement of the handle, when this work overcomes the resistance of the spring, will cause the handle to pivot or rotate about the work-engaging member.

The Court: You mean the little handle rotates?

Mr. Coltman: No, Your Honor. If you take this work-engaging member at this end (indicating) and hold it, then turn this handle—assume this is the wrench, and it grips the head of the bolt, like the bolt that fastens the head of an automobile engine to its base, then turn it, and when the bolt is tightened the handle continues to rotate or pivot.

The Court: You do not mean just the handle; you mean it all rotates.

Mr. Coltman: No, this doesn't rotate. This (indicating) remains fixed upon the head of the bolt.

The Court: I do not understand how the handle rotates without the whole apparatus rotating.

32 Mr. Coltman: If Your Honor please, this represents the holding of this end of the wrench on top of a square head bolt, and the workman turns and tightens the bolt this way (indicating) and when the bolt is tightened up to a point where it no longer turns then in order to tighten the bolt with a certain force this wrench is moved, continues to move this way (indicating), and when it is moved this (indicating) remains fixed.

The Court: I just want to get these elementary matters in my mind.

This is not a rotary motion, is it?

Mr. Coltman: Yes, sir.

The Court: Do you flex it from one side to the other?

Mr. Coltman: Yes, sir. It is a pivotal motion.

The Court: What you do is flex it from one side to the other?

Mr. Coltman: That is right.

The Court: I thought by "rotary motion" is meant turning the apparatus around.

Mr. Hutchinson: It is a tightening operation until you get your bolt as tight, say until the resistance starts overcoming that spring.

The Court: I am not clear about how you tighten your bolt by flexing the apparatus from one side to the other.

Mr. Coltman: Here is a photograph of the engine
33 head and here is a bolt. This goes down over the
bolt this way (indicating), and the bolt is tightened
by turning the wrench in a horizontal fashion.

The Court: This photograph I can follow. You may proceed.

No doubt I have asked you some very elementary questions because I am not a mechanic.

Mr. Coltman: This device is not as simple as it may appear on the surface, and I can appreciate the questions you ask.

Here is a chart which illustrates this flexing or pivoting of the handle about the work-engaging member. This (indicating) is termed the work, designated green on the chart. That is this part down here (indicating).

The spring bar is colored red. The handle is brown, while the head portion to which the handle connects is blue.

When the work-engaging member is placed down over the work on top of this bolt head and the bolt is tightened, as soon as that tightening tends to overcome the resistance on this spring the spring will flex in this manner. The handle will continue to pivot about and the work-engaging member, this part here (indicating), does not rotate any longer, but the handle does.

The Court: Let us see if I understand this correctly, If I do not I want you to tell me so.

34 The end of this bar, the end opposite to the handle, is inserted into the bolt that is to be tightened. Then the bar is flexed to one side or the other until it reaches a point where it can be flexed no further.

Mr. Coltman: The wrench is turned one way or another until the bolt will no longer freely turn.

The Court: And at that point the pointer—

Mr. Coltman: The spring flexes from that point on.

The Court: Yes, and the pointer indicates on the scale attached near the handle the amount of torque that is being exerted.

Mr. Coltman: That is correct, Your Honor. That is exactly correct.

A torque is always the force applied at the handle times the distance between the handle and the work, but that won't be very much involved.

The Court: I think I recall that much in physics.

Mr. Coltman: I wish to hand Your Honor a copy of plaintiff's original patent No. 2,283,707 from which this reissue application was filed.

Your Honor will note that in this patent the torque wrench which I have shown Your Honor is disclosed in the drawing.

The drawing contains six figures.

Figs. 1, 2 and 3 disclose a torque wrench such as I
35 have described to Your Honor.

The work-engaging member is designated 10—

The Court: I think that is clear. Having seen the apparatus itself the first three figures are perfectly clear.

Mr. Coltman: Figs. 1, 2 and 2 cover the wrench in its entirety.

Fig. 4 does not illustrate the entire wrench but an improvement that the plaintiff made on the handle mounting.

That improvement comprises the pivot designated as Figs. 26 to 34.

The Court: Is that involved in this case?

Mr. Coltman: Yes, sir, and the purpose of that is to cause the workman to apply the force tangentially to the work-engaging member. Instead of gripping the member this way (indicating) he holds it and it is applied tangentially. The handle should float and not top the load by applying the force, if it is applied tangentially to the work-engaging member.

Going to the question of same invention, that is whether the invention covered by claims 3 to 8, inclusive, are for the same invention that the plaintiff intended to secure to himself, shall we say, in this original patent I would like to say this, that the first paragraph makes it very plain that the plaintiff was seeking to obtain a patent on the torque wrench that he disclosed in the drawing. He says this invention relates to a torque wrench.

36 The Court: What are you reading from?

Mr. Coltman: I am reading from the patent, Your Honor, page 1.

The Court: You mean from the original patent?

Mr. Coltman: From the original patent, Page 1, Column 1.

The Court: I have it, but after all the question in issue is whether the claims of the reissue patent read upon the original patent, not whether the two disclosures are the same.

Mr. Coltman: Ground 3, Your Honor, is whether the invention covered by the reissue claims is for the same invention—

The Court: I understand.

Mr. Coltman: And that isn't the question of readability, and readability is a separate question here.

The Court: A question of what?

Mr. Coltman: Readability whether the claims read upon the disclosure of the original invention is a separate question from the question of same invention or identity of invention.

I hope I am not confusing Your Honor.

The Court: I have a little familiarity with the law of patents. You are not confusing me.

37 Mr. Coltman: I have no doubt that if Your Honor examines this patent, the drawing, and the specification, he will clearly see that the plaintiff was attempting to secure to himself as his invention a patent on that wrench and not a patent on the detail of this handle.

The position of the Patent Office has been that the plaintiff in the prosecution of his original patent gave up everything but the detail of the handle, this floating handle shown in Fig. 4 and that the two claims of the original patent merely cover that handle shown in Fig. 4.

It is plaintiff's position before this Court that the position of the Office is not correct on that point; that these claims are directed to the general organization of the wrench, including the work-engaging member, the spring bar and how the spring bar is connected to the work-engaging member at the front.

The Court: May I interrupt you?

Mr. Coltman: Yes.

The Court: I think it would help me if I have the application before me.

Mr. Coltman: I shall get to that immediately.

The Court: I take it you will offer in evidence the disclosure, of course, but I think it would help me in following your statement if I could have it before me.

38 Mr. Coltman: I shall do that, Your Honor. This is a certified copy of the reissue application; and I have here, Your Honor, a copy of the reissue claims involved in this case.

The Court: Those are in the complaint. I just wanted to see the reissue application itself.

You may proceed.

Mr. Coltman: In connection with this reissue application, the drawing is the same as the original patent. It has not been changed or modified. The specification is the same. It has not been changed.

The Court: You mean the description is the same?

Mr. Coltman: Yes, sir, exactly the same, word for word.

The Court: There is no dispute as to that?

Mr. Cochran: That is right, Your Honor; no dispute as to that .

The Court: Very well.

Mr. Coltman: As to the question of readability, may I get to that now?

The Court: Yes, proceed in your own way.

Mr. Coltman: The position by the Patent Office has been that reissue claims 3 to 8 inclusive do not read upon the disclosure of applicant's original patent, or his reissue application, because they contain the following words:

"A work-engaging member pivotally supported adjacent one end of said handle."

The Court: And the position of thePatent Office is
39 that does not read on the disclosure?

Mr. Coltman: That is correct. It has taken the position that this work-engaging member, which I grip with my left hand, is not carried in pivotally supported relation to this handle, or adjacent one end of this handle.

Also with respect to this reissue claim 3 it says that there is no reference in the original patent that the plaintiff intended to cover as a feature of his invention the extending of the spring bar across the axis of rotation of the work-engaging member.

If the Court will please refer to the drawing of the original patent in Fig. 3 you will note that the spring bar at the left-hand end extends across the work-engaging member and is held therein by the rivet 14.

The Court: That is Figure 3?

Mr. Coltman: That is Fig. 3. In Fig. 2 Your Honor will note that the spring bar terminates at the work-engaging member, and Fig. 3 is a cross-sectional view and shows how the spring bar extends through or completely across the work-engaging member 10.

The Court: Is there any description at this point?

Mr. Coltman: Yes, sir. It is said at page 2 of the patent, Column 1, lines 46, et seq:

"The head 10 is slotted to receive one end of the measuring beam 12, the slot being preferably milled to the
40 precise measurement of the width of the beam and deep enough to receive the full width of the beam and, for convenience in manufacture, a pointer 13 in a slightly spaced relation to the beam."

It will be plaintiff's position with respect to the words, "A work-engaging member pivotally supported adjacent one end of said handle member" that these words cover a functional relation and not a structural relation.

It sets out the relation of this work-engaging member at one end of the handle during the time the wrench is in operation, and it properly describes the relation of applicant's work-engaging member with respect to his handle, and I believe, Your Honor, that the question of readability may be quickly disposed of in this case by reference to a second Sturtevant patent that issued very recently, No. 2,385,591, on September 25, 1945. The application was filed on July 17, 1944. I am handing Your Honor a copy of this patent.

The second Sturtevant patent covers exactly the same wrench disclosed in applicant's original patent plus an added feature. This added feature is an overload release—

The Court: I do not see how that enters into this litigation?

Mr. Coltman: Let me proceed and we will develop how it does, if Your Honor please.

The Court: I would like to confine the issue to the
41 precise matters in controversy.

Mr. Coltman: They are being confined, Your Honor.

This wrench here (indicating) disclosed in this second Sturtevant patent just issued is the same as the wrench—

The Court: It would help me if you would tell me now and then develop it, how you deem this patent, copy of which you just handed me, as relevant in this case.

Mr. Coltman: The Patent Office has allowed the use of the very language it objects to in the reissue claims in the second patent to describe the same structure.

The Court: Is it your contention you can take out anybody's patent, any other patent whatsoever that the Patent Office has issued, in order to show that the Patent Office in other cases has accepted the meaning of the term here in controversy in the manner you contend for it?

Mr. Coltman: Not anybody's patent, Your Honor.

The Court: I see no difference. This is another patent, an entirely different patent. The mere fact it happens to be the same patentee as the applicant in the case does not seem to me to make any difference.

Mr. Coltman: We will show by the evidence, Your Honor, it is not only the same patentee, but the same structure and the same examiner in the Office allowed this language in this second patent as readable or properly descriptive.

The Court: I think I follow your point. I think
42 it is going a little afield.

Mr. Cochran: I don't suppose, Your Honor, it is time for me to make any objection.

The Court: No; this is an opening statement.

I do think you are really summing up, rather than opening, so I do suggest, if I may, you be a little briefer and just state your claims without arguing them.

Mr. Coltman: The point is this, Your Honor: If you refer to Claim 8 in this second Sturtevant patent you will notice these words, "A work-engaging member pivotally supported adjacent one end of said head member." That was held by the Patent Office, after this controversy had arisen, as being properly descriptive of the same structure, and I think it is persuasive.

The Court: It is not evidence, it does not seem to me. It is persuasive in a sense as one court decision of coordinate jurisdiction is persuasive to another court, but it is not evidence as to the meaning of the word.

Mr. Coltman: If Your Honor please, this structure, this torque wrench before you involves a rather important device.

Over 287,000 of these wrenches have been made and sold, representing sales of $2,400,000. It has played an important part in this war effort of ours, and I am merely referring to it at this time in order that Your Honor will obtain an appreciation of the importance of this case. The
43 evidence will show that approximately 65 to 75 per
cent of the torque wrenches used during the war were the torque wrench that is before Your Honor today.

The Court: I do not see how that is material under Section 4915. This is not an infringement suit.

Mr. Coltman: No, but it shows the importance and what the inventor tried to—

The Court: The importance of the invention is not in issue under Section 4915.

Mr. Coltman: May I proceed further, Your Honor?

The Court: Oh, yes.

Mr. Coltman: These claims 3 to 8 have been copied out of another patent for the purpose of an interference with this other patent. The other patent is a patent to Zimmerman No. 2,283,888. It issued on May 19, 1942.

The Court: I see I have it here.

Mr. Coltman: It issued the same day as plaintiff's original patent. It was filed but four months before plaintiff's application. The Zimmerman patent application was filed November 22, 1937. Plaintiff's application of the original patent was filed March 28, 1938.

These reissue claims, if I may refer to them—

The Court: In other words, what you are trying to do is to get a reissue in order to get an interference with the Zimmerman patent?

44 Mr. Coltman: Yes, sir, because these claims read upon our structure.

Reissue claims 5 and 6 are claims 12 and 15 of the Zimmerman patent and it is significant, if I may point out to the Court, that they were inserted in the Zimmerman application seventeen months after Zimmerman filed his application and after the plaintiff in this case had his product on the market in substantial quantities.

I also would like to point out that reissue claims 3, 4 and 8 are claims 33, 28 and 34 respectively of the Zimmerman patent, and they were not inserted until two years and three months after Zimmerman filed.

The Court: Are all the claims here in issue, that is claims 3 to 8, copied from the Zimmerman patent?

Mr. Coltman: All but No. 7.

The Court: You may proceed.

Mr. Coltman: Claim 7 is substantially like Claim 8, a little broader, and is in the same class.

Zimmerman did not insert these claims 33, 28 and 34 until January 30, 1941.

The Court: I do not see how that is material.

Mr. Coltman: I think it is material to show that the patentee, Zimmerman, was seeking to use language—

The Court: I have just stated, and I think correctly, there are only two questions in this case, and it seems
45 to me some of the matters to which you have been referring are interesting and they have a practical importance but have no legal importance in this litigation, and I think the discussion of the trial should be confined strictly to the issues.

Mr. Coltman: Very well. I will continue?

The Court: Yes, proceed, please.

Mr. Coltman: The evidence will show that the plaintiff before he filed his application for his first patent was unacquainted with patent matters. He had only one patent issued to him before that, away back in 1920.

The Court: He was represented by patent counsel?

Mr. Coltman: Yes, he was represented by patent counsel the same as almost every patent applicant is in the Patent Office.

He did not know what a patent claim meant.

The Court: No, laymen do not and many lawyers do not either.

Mr. Coltman: It takes a long time before a lawyer understands what a patent claim means, and the evidence will show that when the original patent issued he didn't know that a person could make the wrench shown in Figs. 1, 2 and 3 without infringing his patent, and he only discovered that, as the evidence will show—and I am just outlining it—

The Court: I wish you would make a very brief outline. Do not summarize the entire case.

46 Mr. Coltman: He did not understand just what his patent covered, and it was only after nine months that he was advised of this fact, and he immediately, within thirty days, applied for a reissue.

The Court: It seems to me his patent counsel should have advised him what a claim was.

Mr. Coltman: The error of the patent counsel is a ground for reissue as well as an error of the patentee, and the Supreme Court has so construed the statute and all the courts have so held.

The Court: What I meant to suggest was that a client's ignorance of the law is not very important if he is represented by counsel.

Mr. Coltman: All patentees are represented by counsel.

The Court: Therefore, the patentee's ignorance of the law is not very important. You might as well say in any litigation the client is ignorant of what his lawyer is doing; he generally is. Proceed.

Mr. Coltman: If I might comment in that connection, there would be very few reissue patents—

The Court: What you are referring to really is counsel's mistake and inadvertence and accident that is important. Have you anything more? I do not want to hurry you.

Mr. Coltman: I had intended to outline the case a little more fully, Your Honor.

47 The Court: Go ahead, but hit the high spots only.

Mr. Coltman: I am attempting to do it.

I had wanted to point out at this time that the evidence would show that this man didn't have that appreciation—

The Court: I understand that. Pass on to the next point.

Mr. Coltman: And counsel did everything he could and then the reissue was applied for and there has been no intent to defraud anybody in the filing of this application. Thank you.

The Court: Mr. Cochran.

48 Opening Statement on Behalf of the Defendant.

Mr. Cochran: May it please Your Honor, there are three grounds on which the plaintiff does not have a right to make these claims on the basis of the disclosures made in his application—

The Court: Because they do not read on the disclosure?

Mr. Cochran: That is right. In other words, he is claiming something he doesn't have in the application.

That thing which he does not have, and which he is claiming is a pivotal connection between the handle and the nut-turning portion of the wrench.

The Court: Where is the pivotal connection?

Mr. Cochran: There is none, and that is where the trouble comes. There is no pivotal connection. The blade is rigidly fastened to the head, and it is rigidly fastened at its one end to the handle and there is no pivotal connection, and there is where the failure is on disclosure.

Plaintiff will argue, of course, that because there is a deformation of the blade at the time the nut is being tightened there is a pivotal connection, as Your Honor pointed out, but that is the same as saying the trees in the park are pivoted to the ground because they sway in the weather.

These claims which are copied from the Zimmerman patent are supported by the Zimmerman patent. Zimmerman does have a pivotal connection very clearly.

49 The Court: Where does he show it?

Mr. Cochran: He shows it in Fig. 9, Your Honor, which is on sheet 2 of the drawings. That is perhaps the easiest one to see it; Fig. 9, sheet 2 of the Zimmerman patent. It is one shown in cross-section, on page 2.

The Court: What number there is the pivotal connection?

Mr. Cochran: The number 87 indicates the central stud which is going to engage to turn a nut.

The Court: Where does that show the pivot?

Mr. Cochran: Around it, Your Honor, around that central stud 87 is the member 88, and that member swivels around the inner member 87. There is where the pivot joint is and that is what a pivot is, a swivel joint.

The Court: The drawing doesn't show that.

Mr. Cochran: The description covers that. I assure Your Honor the evidence will show that, and plaintiff does not dispute there is a turning movement of the outer member 88 around the inner member 87, and that is a pivotal joint which is referred to in the claim of he Zimmerman patent.

There are many authorities on the right to make claims, when a man copies the claims from another patent.

The Supreme Court said in Chicago Northwestern Railway Company vs. Sayles, 95 U. S. 54:

> "Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once
> 50 filed—"

The Court: I recall that case. That was not a reissue case, was it, as I recall it?

Mr. Cochran: I think not, and, of course, it is even more so on a reissue case.

The Court of Appeals of the District of Columbia said in Steenstrup versus Morton, 58 Appeals D. C. 343:

> "When an applicant attempts to copy claims from an existing patent, it is incumbent upon him to show clearly, in his specification and structure, the means for accomplishing the object called for in the claims."

If there is any question of doubt as to the right of applicant take the claim of a patent and to copy it, then if there is any uncertainty as to the meaning of it, that is resolved against the plaintiff. He must show clearly that he has the right, and if there is any question as to the meaning then the meaning as used in the patent governs, and that is the decision of Lindley versus Shepherd, 58 Appeals, D. C. 31.

I have two more decisions here I could give you to the same effect by the Court of Appeals of the District of Columbia.

The Court: I do not think that is necessary. I do not think there will be any dispute as to that point of law.

51 Mr. Cochran: So that is the position on the first point.

The second point is that what plaintiff is claiming here is not the same invention as he sought to obtain a patent on in the first patent, and thought he was getting a patent on in the first patent.

Your Honor will recall that in the patent which was granted to plaintiff those claims were limited to this feature here (indicating), that is to say, the handle piece was pivoted to the bar so as to apply the force at a certain point. Of course, that is not a pivot we are talking about in the other sense.

Both the claims are limited to that feature, but none of the claims now presented mention that.

These other claims move over to the other part of the device entirely and claim something here which plaintiff doesn't even have, so plaintiff in the present claims has moved entirely away from what he claimed in his first case, so now we state he is not claiming the same invention which he claimed in his patent.

The Court: Did the disclosure support the reissue claims? Isn't that sufficient?

Mr. Cochran: No, it isn't sufficient that he merely disclosed it, but it must be for the same invention that was sought to be protected and the same invention which the applicant thought he was getting a patent on in the first case.

52 The Court: One of the principle purposes of the reissue is to correct deficiencies in the claims of the original patent, and it seems to me that we would be begging the question if we say that the claims of the original patent have certain deficiencies and these deficiencies cannot be supplied by reissue.

Mr. Cochran: That would defeat the whole thing if it were carried to that extent, of course, Your Honor. But the reissue statute was, I think, allowed to correct actual mistakes, and also at times to let the man broaden his claims where it was unduly limited.

The Court: Is there any question here that these claims are unduly limited? Obviously, they are very limited.

Mr. Cochran: But they were limited, but not by any inadvertence, accident, or mistake. I will come to that point, but I contend they have moved away from this and moved over to the other side of the device so it cannot be said they are claiming more broadly than this thing.

The last point is that there was no inadvertence, accident or mistake.

The original application on which the patent was granted was prosecuted four years in the Patent Office, during which time quite a few claims, I think 17 were prosecuted altogether.

Many of those claims didn't have anything to do, did not recite in any way this pivotal handle out at the end
53 here (indicating), but were directed in a general way to the blade structure and how it was fastened to the head, and all that.

At the end the attorneys for the plaintiff deliberately canceled all the claims in the case except two which are limited to the two I have mentioned.

Under those circumstances, there could not be said to be inadvertence, accident or mistake, unless the attorneys could point out some particular fact which constituted inadvertence, accident or mistake.

The authorities are very clear that the deliberate acts of the attorney cannot constitute inadvertence, accident or mistake. That is Grand Rapids Show Case Company versus Baker, 216 Fed. 341.

Incidentally, I have that here, Your Honor, if you wish to look at it instead of looking it up in the library.

In Court of Appeals decision here in re Schneider, 49 Appeals, D. C. 204, the Court said:

> "Nor will it do for applicant to say that the fault was that of his solicitor in drawing the original claims. They were his agents and he is bound by their acts."

I believe then, Your Honor, that any one of these grounds is entirely sufficient to justify dismissing the complaint. If any one of them is found proper, then the complaint should be dismissed.

54 Mr. Coltman: May I say one word?

The claims do not say that the work-engaging member is pivotally connected. That is the error that is being made.

The Court: It says, "pivotally supported."

Mr. Coltman: Yes, sir. It doesn't say connected to.

And also on this question of inadvertence, if Your Honor intended to refer to authorities during the noon hour I would like to direct Your Honor's attention to 81 Fed. (2nd) 402, in re Crowell.

The Court: Is that a D. C. case?

Mr. Coltman: Court of Customs and Patent Appeals, on the very same thing.

A reissue was involved there, and the applicant asserted broader claims when he was in the office the first time, and they were rejected to him, and the Court pointed out that if the limitation of the reissue claims had been asserted in the original patent, undoubtedly the Patent Office would have allowed him these claims.

Our position is this: Our original claim was broad and they were met by the prior art, and finally rejected and canceled. We had to do that. These reissue claims contain limitations that were never asserted before.

* * * * * * * * * *

55 Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 1 a certified copy of the file wrapper of plaintiff's original patent number 2,283,707, granted May 19, 1942.

The Court: It may be admitted.

(Said file wrapper was marked as "Plaintiff's Exhibit No. 1" and received in evidence.)

Mr. Coltman: I would like to point out to the Court that this file history includes a printed copy of the patent at page 108 of the file history, so I will not offer a copy of the patent itself.

I offer in evidence as Plaintiff's Exhibit 2 a certified copy of plaintiff's reissue application, serial number 479,300 filed March 16, 1943. Let the record show that this file history is in two parts.

The Court: It may be admitted.

(Said certified copy of plaintiff's reissue application, in two parts, was marked as "Plaintiff's Exhibit No. 2" and received in evidence.)

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 3 a certified copy of a file wrapper, serial patent number 2,283,888, dated May 19, 1942. 56

Mr. Cochran: No objection.

The Court: The Court does not see the relevancy of the Zimmerman file wrapper. I do not want to encumber the record unduly.

Mr. Coltman: Except for the fact that if the Solicitor for the Commissioner of Patents insists that the language of reissue claims 3 to 8 do not read upon our disclosure, plaintiff would like to refer to the file history, maybe, in order to show there the meaning of that language as used by Zimmerman and that as used it reads directly upon plaintiff's structure.

The Court: May I inquire this? Do you contend you can bring in the file wrapper of any patent whatsoever in the Patent Office for the purpose of showing that the Patent Office excepted as to some terms used in those other patents?

Mr. Coltman: This Zimmerman patent is the patent from which plaintiff copied reissue claims 3 to 8.

The Court: I understand, but the Zimmerman patent is outside the scope of the issues, is it not?

Mr. Coltman: I don't think it is, Your Honor. I would like to have the opportunity of discussing that point later.

The Court: The counsel for defendant has not objected, so naturally I am not going to exclude it.

Mr. Cochran: May I say a word on that?

57 The Court: Yes.

Mr. Cochran: If there is any doubt as to what the meaning is of the words "pivotally mounted," or "pivotally connected," or whatever the term is, then we look to the Zimmerman patent, where the term originated, to see what it means in that patent, and to that extent I think it is pertinent to have it in here.

The Court: All right.

Mr. Cochran: Where the question of the interpretation of the term is in doubt, we go to the place where it originated.

The Court: You are going to put in evidence, then, the fact you copied this from the Zimmerman patent?

Mr. Coltman: Yes, sir.

The Court: This exhibit is just premature, but there is no harm in that.

(Said Zimmerman file wrapper was marked as "Plaintiff's Exhibit 3," and received in evidence.)

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 4 a torque wrench, or I will ask that it be marked for identification as Plaintiff's Exhibit 4.

(Said torque wrench was marked as "Plaintiff's Exhibit 4 for identification.")

Mr. Coltman: I also ask that this torque wrench be marked for identification as Plaintiff's Exhibit 5.

(Said torque wrench was marked as "Plaintiff's Exhibit 5 for identification.)

58 Mr. Coltman: I also ask that this torque wrench be marked for identification as Plaintiff's Exhibit 6.

(Said torque wrench was marked as "Plaintiff's Exhibit 6 for identification.")

Mr. Coltman: And I ask that this torque wrench be marked for identification as Plaintiff's Exhibit 7.

(Said torque wrench was marked as "Plaintiff's Exhibit 7 for identification.")

Mr. Coltman: I shall now call the plaintiff, Mr. Paul A. Sturtevant as a witness.

Thereupon—**Paul A. Sturtevant**, was called as a witness by and in his own behalf, and, having been first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Coltman:

Q. Please state your name, age, residence, occupation. A. Paul A. Sturtevant; age, 37; residence, 232 Winthrop Avenue, Elmhurst, Illinois. My occupation is engineer and manufacturer.

Q. Are you the plaintiff in this case? A. Yes.

Q. And you are the applicant of reissue application serial number 479,300 filed March 16, 1943? A. Yes.

59 Q. And you are the patentee of United States Letters Patent 2,283,707 granted May 19, 1942 on an application filed by you on March 28, 1938? A. Yes.

Q. When did you first market the torque wrench that you have disclosed in said patent number 2,283,707 and disclosed in reissue application serial number 479,300? A. At least as early as June, 1937.

Q. You have examined the records before appearing here as a witness on the stand and have ascertained that from your records? A. Yes, I have.

Q. Will you please state what you sought to accomplish by the invention disclosed in said patent and in said reissue application? A. I would like to briefly cover the history of a few—

The Court: No. Confine yourself to the question if you will, Mr. Sturtevant, and a sentence or two will be sufficient to give the answer to the question.

The Witness: Yes, Your Honor, I attempted to create or design, a torque wrench, such as my wrench here.

By Mr. Coltman:

Q. Will you refer to it by Exhibit Number? A. The design for the practical wrench such as I have in my
60 hand.

Q. What exhibit number is that marked? A. Exhibit No. 7.

Q. This wrench which I have in my hand was manufactured by you? A. Yes, it was.

Q. And the wrench marked for identification as Exhibit 8 was so manufactured? A. Yes, sir.

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 7 this wrench heretofore marked for identification as Plaintiff's Exhibit 7.

Mr. Cochran: No objection.

The Court: It may admitted.

(Said torque wrench, heretofore marked for identification as "Plaintiff's Exhibit 7" was received in evidence.)

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 8 the second wrench referred to and identified by the witness.

Mr. Cochran: I don't know for what purpose this wrench is offered in evidence, but it is not really the wrench which is shown and claimed in plaintiff's original patent in that it does not have the handle structure which is specifically claimed in the patent.

The Court: What is the basis of your objection?

61 Mr. Cochran: It is not evidence on the issue here before the Court.

The Court: It is irrelevant?

Mr. Cochran: Yes.

Mr. Coltman: I would like to point out it is the wrench shown in Figs. 1, 2 and 3 and described in the patent, and the device that the patent intended to embody in the invention.

The Court: I will admit the exhibit. Its probative value I don't really see, but I will admit it.

(Said torque wrench, heretofore marked for identification as "Plaintiff's Exhibit 8" was received in evidence.)

Mr. Coltman: Will you concede, Mr. Cochran, that this wrench, Plaintiff's Exhibit 8, is shown in Figs. 1, 2 and 3 of the patent?

Mr. Cochran: I will have to look again.

The Court: What difference does that make whether it does or doesn't? I thought these exhibits were just for the purpose of demonstration. They are not evidence in the case, are they?

Mr. Coltman: Yes, Your Honor. I would like to have them in as part of the case to show what this plaintiff considered as his invention.

The Court: You may proceed. I will admit them.

Mr. Cochran: In answer to your question, it appears to me that the wrench, Plaintiff's Exhibit 8, corre-
62 sponds pretty well to Figure 1 of the patent, so far as I can see.

By Mr. Coltman:

Q. I call your attention to a torque wrench marked for identification as Plaintiff's Exhibit 6 and ask if this is a wrench made by you? A. Yes.

Mr. Coltman: I offer in evidence this torque wrench as Plaintiff's Exhibit 6.

Mr. Cochran: No objection.
The Court: It may be admitted.

(Said torque wrench, heretofore marked for identification as "Plaintiff's Exhibit 6" was received in evidence.)

By Mr. Coltman:

Q. Through what company do you manufacture and sell your torque wrenches? A. I manufacture and sell my torque wrenches through my company, P. A. Sturtevant Company.

Q. You have granted a license to the P. A. Sturtevant Company to manufacture and sell this wrench? A. Yes, entirely.

Q. To show the Court what you considered to be your invention in this torque wrench, will you point out to the Court the art or the industry prior to the time you made your invention? A. In 1935 the Micromatic Hone
63 Company of Detroit, Michigan, designed, developed and manufactured a hydraulically-operated torque wrench, such as shown in the picture that I have had in my files, which depicts or clearly shows the wrench that I am familiar with made by the company.

Q. You are now referring to a photograph? A. That is right.

Q. From whom did you get this photograph? A. I obtained it from the Micromatic Hone Company.

Q. When? A. Sometime ago, a number of years ago.

Mr. Coltman: I offer in evidence as Plaintiff's exhibit 9 the photograph referred to by this witness.

Mr. Cochran: I offer no objection to it, Your Honor.

The Court: It may be admitted.

(Said photograph was marked as "Plaintiff's Exhibit 9" and received in evidence.)

By Mr. Coltman:

Q. Will you kindly tell the Court what knowledge you had of this industry prior to June, 1937, when you say you brought out your wrench involved in this proceeding? A. The Micromatic Hone Company entered into a—

Q. What was your knowledge of this industry prior to 1937? A. I was engaged in sales engineering work.

64 Q. For whom? A. For the Cedar Rapids Engineering Company of Cedar Rapids, Iowa.

Q. And when did you first work for that company? A. I started with that company in 1924.

Q. In what capacity?

The Court: I don't see that the plaintiff's life history is relevant to the issues. I do not want to unduly restrict you, but I think we ought to get down to the issues.

Mr. Coltman: I want to show that this witness is qualified to testify as to when the first torque wrench ever appeared on the market in the industry.

The Court: He said he was an engineer for years in this industry.

Are his qualifications questioned?

Mr. Cochran: No, Your Honor.

The Court: Then you do not have to go into that.

By Mr. Coltman:

Q. When did the first torque wrench appear on the market that you know of? A. In 1935.

Q. And what torque wrench was it? A. The one shown in the picture manufactured by the Micromatic Hone Company of Detroit, Michigan.

Q. Shown in Plaintiff's Exhibit 9? A. That is
65 right.

Q. Do you know how long the Micromatic Hone Company torque wrench remained on the market? A. Approximately one year.

Q. Did any other torque wrenches appear on the market at that time, or shortly thereafter? A. Yes, a torque wrench manufactured by the Cedar Rapids Engineering Company.

Q. Have you one of those wrenches here? A. Yes, I have

Q. Will you please produce it? A. Here is the torque wrench manufactured by the Cedar Rapids Engineering Company.

Q. Will you explain how this wrench operates? A. This torque wrench has a work-engaging member on which you place a socket, such as I have in my pocket, to engage the work and tighten it.

The work-engaging member consists of a square running through to an aluminum casting through a rigid handle, or extends to a handle member which you grip in tightening the work.

The head part rests against a hydraulic cylinder or piston in the hydraulic cylinder. This is filled with oil and the gauge is screwed into one part of it.

As the wrench is pulled down and the work resists
66 the pull, it compresses the piston in the cylinder and
in turn compresses a cylinder and registers on the
gauge. The amount of pull on the handle is registered in proportionate amounts.

Q. What do you say with respect to the accuracy of the operation of this wrench that you have just explained? A. The piston has a rubber seal, and as the pressure in the cylinder is increased by an increased load on the handle more friction is created which absorbs part of the energy and makes it register inaccurately on the gauge—the frictional resistance in this cylinder.

Q. Referring to this photograph, Plaintiff's Exhibit 9, point out to the Court, if you will, how the torque wrench illustrated there operates. A. The torque wrench shown on the photograph operates on the same principle as that I have just shown.

A handle, a rigid member, down to a head, a hydraulic cylinder with a piston in it, oil in the cylinder which as the piston is forced into the cylinder by the pressure on the handle runs through the gauge and registers on the gauge and incorporates a rubber seal, but as the pressure increases the resistance on the wall of the cylinder increases.

Therefore, the gauge drops off inaccurately due to that loss of friction in the cylinder.

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 10 the Cedar Rapids wrench just identified by the witness.

67 Mr. Cochran: No objection.

The Court: It may be admitted.

(Said Cedar Rapids wrench was marked as "Plaintiff's Exhibit No. 10" and received in evidence.)

By Mr. Coltman:

Q. In either of these two devices, the Cedar Rapids wrench or the Micromatic Hone Wrench, does the handle flex? A. No, it is rigid; it does not flex.

Q. I hand you a device and ask you if you know anything about it. A. Yes, it is a torque wrench manufactured by the Automotive Maintenance Machinery Company in North Chicago.

Q. When was that made by the Automotive Maintenance Company in North Chicago? A. These were made in 1936.

Q. I notice the word "Miller" and also the name "Miller Tool Manufacturing Company, Detroit," on the face of the dial of this wrench. Will you please explain those designations? A. These were sold by the Miller Tool and Manufacturing Company of Detroit as an agent or jobber of the manufacturer.

Q. Do you know how long this Miller wrench was sold by the Miller Tool Company of Detroit? A. Approximately two years.

Q. And what happened? A. It was replaced by
68 my wrench.

Q. What do you mean by your wrench? A. The wrench covered by my patent and shown in Exhibit 8 and Exhibit 7.

The Court: In the absence of objection, that is permitted. How much longer are you going to take along this line?

Mr. Coltman: Very shortly.

The Court: Because I do not see any relevancy to the issues in this case.

Mr. Coltman: May I point out the Automotive Maintenace Machinery Company is the assignee of the Zimmerman patent from which the plaintiff has copied these claims.

The Court: Well, that is different.

By Mr. Coltman:

Q. Have you been involved in direct competition with the Automotive Maintenance Machinery Company? A. Yes.

Q. Has your torque wrench, involved in controversy here, been sold in other places where the Automotive Maintenance Machinery Company had previously sold its wrench?

The Court: We have the fact that there is competition, and I do not think it is necessary to develop that.

By Mr. Coltman:

Q. Have you examined your records to determine the number of wrenches sold from June, 1937 to May 1,
69 1939? A. Yes.

Q. How many wrenches? A. Very close to 5,500.

Q. At what price?

Mr. Cochran: If it will shorten the proceedings, may I concede that the plaintiff's wrench is very successful and that it is useful. I do not see any need of proving those things.

The Court: In the face of that concession I do not think you need pursue it.

Mr. Coltman: Will you concede that the plaintiff's wrench here displaced the Automotive Maintenance Machinery Company's wrench on the market?

Mr. Cochran: I don't know about that.

The Court: I do not think it makes any difference. This is not an infringement case.

Mr. Coltman: The only thing I wish to show by this evidence is that as the plaintiff's wrench was marketed, and as it displaced the Automotive Maintenance Machinery

Company wrench, the Automotive Maintenance Machinery Company in the Zimmerman application started for the first time to assert these claims that we copied, obviously with a view of covering the plaintiff's wrench. That is the probative value.

The Court: You are not trying an interference proceeding.

Mr. Coltman: No, we are not, but to show that
70 there was a reason for using language of the type
that Zimmerman used in these claims.

The Court: I will let you offer that if you will be very brief because I doubt its probative value. It may be relevant, but it has very weak probative value.

By Mr. Coltman:

Q. You have examined your records to determine the number of torque wrenches that you sold from June 1937 to February 1941? A. Yes.

Q. How many wrenches?

The Court: You have a concession here that there has been a large number sold on the market. I do not think you should enlarge upon that.

Mr. Coltman: Just that question.

The Court: I will let him answer that question and that will close that line of inquiry.

By Mr. Coltman:

Q. Will you answer the question? A. Within a few of 15,000.

Q. Will you kindly state to the Court the operation of your torque wrench involved in this issue using whichever device you may wish of your wrenches?

The Court: Unless you want this for the purpose
71 of the record, so far as the Court individually is con-
cerned, you explained this sufficiently in your open-
ing statement.

Mr. Coltman: I would like to have the Court see the action of this wrench when it is worked.

The Court: Very well. I was just trying to help you.

Mr. Coltman: I think it will throw a different light on the meaning of the words that are here in dispute.

The Court: Very well.

The Witness: I have a bolt, a common bolt with a nut on it inserted through a board. I have a common socket such as is used to tighten nuts and bolts.

I engage the socket with the head of the bolt, insert the wrench. Now, the purpose of the tool is to determine how tight a nut or bolt or stud is tightened.

The functioning of the wrench, as the work-engaging member is engaged with the work, to start with it rotates freely as you pull on the handle.

As the tightness of the bolt resists the rotation of the wrench that resistance registers on the bar causing it to spring, giving you as you pull on the handle a rock movement between the handle and the head, such as I am showing now. That rock movement displaces the dial in relation to the work-engaging member.

The pointer, which is affixed to the work-engaging member stays in constant relationship to it. The differ-
72 ence is read on the dial, determining the amount of
torque that is being developed in the tightening of the nut, bolt or stud.

That can be worked in either direction as is shown.

In other words, you have a rock movement there as the wrench functions. It rocks around the pivot.

By Mr. Coltman:

Q. Which is the pivot? A. The pivot is the center line of the work-engaging member and this pivots around, and the rock movement comes between the work-engaging member and the head of the wrench.

Q. Is that rock movement essential in the operation of your torque wrench? A. It is essential in that it depends, the amount of torque developed, by giving the difference in relationship between the pointer member and the dial member, as is clearly shown.

Q. As I understand, your pointer will not function to indicate the torque applied unless there is this different relative pivotal movement between the handle and the work-engaging member? A. That is right. That is necessary for the wrench to function; therefore, that rock movement between the two members.

Q. You just demonstrated to the Court the operation of your torque wrench by using the wrench that has
73 been heretofore marked for identification as Plaintiff's Exhibit 5.

Is this wrench, Plaintiff's Exhibit 5, a wrench made by you? A. Yes, it is.

Q. And is it of the type of torque wrench shown in Figs. 1, 2 and 3 of your original patent No. 2,283,707? A. Yes, it is.

Mr. Coltman: I offer in evidence this torque wrench heretofore marked for identification as Plaintiff's Exhibit 5.

Mr. Cochran: No objection.

The Court: It may be admitted.

(Said torque wrench, heretofore marked for identification as "Plaintiff's Exhibit 5" was received in evidence.)

Mr. Coltman: Let me ask you, do you know offhand any particular application in the industry of this intermediate size torque wrench, Plaintiff's Exhibit 5?

The Witness: Yes.

By Mr. Coltman:

Q. Will you please very briefly show the Court one use of that wrench? A. I have here a small relay, such as is purchased from the Cook Electric Company of Chicago, by the War Department in large quantities during the recent war. It is made up of contact points and insulators separating those points.

74 Q. Show the Court the insulators and the contact.
A. The contact points are these metal strips; the insulators are the dark section in between.

Q. By "contact points," do you mean these contact springs that are in stacked relationship here? A. That is right. These are stacked together and held by four screws.

The failure of these insulators caused rejection of large quantities of the relays upon delivery. They had electrical leakage due to a crack that was unable to be seen in the insulators.

The correction of this was obtained by the correction of the tightening of these four screws, thereby eliminating an excessive pressure which caused the fracture or rupture of the insulator.

Q. What instrument was used to get the correct tightening of these screws by the Cook Electric Company? A. The torque wrench, shown as Plaintiff's Exhibit 5, that I hold in my hand.

Q. Do you know of your own knowledge whether Cook Electric Company was able to solve this problem before it used this Plaintiff's Exhibit 5? A. It was not able to solve it.

Q. Do you know of your own knowledge whether there
was a torque wrench on the market capable of being
75 used in lieu of Plaintiff's Exhibit 5 to solve that prob-
lem? A. There is no torque wrench, to the best of
my knowledge that would actually register torque and solve
such a problem on the market today.

Q. I hand you a small torque wrench heretofore marked Plaintiff's Exhibit 4 for identification and ask you if you know who manufactured that wrench? A. P. A. Sturtevant Company, my licensee.

Q. Is that a wrench disclosed by you in your original patent No. 2,283,707? A. Yes, it is.

Q. Will you tell the Court briefly just the application of this torque wrench, Plaintiff's Exhibit 4? A. The application for such a torque wrench as I hold in my hand is the controlling of the tightness of nuts, bolts, and screws in small instruments, such as are used in aircraft, watches, mainly in the instrument field. That covers an untold number of things such as your aircraft turn and bank instruments, automatic pilots that control the planes by gyroscopic action, altimeters.

Mr. Coltman: I offer in evidence as Plaintiff's Exhibit 4 this wrench heretofore marked for identification as Plaintiff's Exhibit 4.

Mr. Cochran: No objection.

The Court: It may be admitted.

76 (Said torque wrench, heretofore marked for identification as "Plaintiff's Exhibit 4" was received in evidence.)

Mr. Coltman: I would also like to offer in evidence at this time as Plaintiff's Exhibit 11 identified by the witness as the wrench manufactured and sold by the Automotive Maintenance Machinery Company of North Chicago.

Mr. Cochran: No objection.

The Court: It may be admitted.

(Said wrench was marked as "Plaintiff's Exhibit No. 11" and received in evidence.)

Mr. Coltman: For the record, Your Honor, I would like to have this witness testify as to the number of wrenches sold up to the present date.

By Mr. Coltman: You have examined your records to determine the number of torque wrenches of the type in question that you have sold to the present time? A. Yes, I have.

Q. Will you please state the number and also their value in dollars and cents? A. We have sold 290,000 torque wrenches, that is within a few. The value of those tools amounts to $2,350,122.

Q. That is the sales? A. That is the sales value of the wrenches.

Q. And which your company received for the 290,-
77 000 wrenches? A. That is right.

Q. Are there statistics available to show the number of torque wrenches made and sold in the United States during any one year? If there are, will you please state what these statistics are? A. Yes. The major tool companies in the United States belong to an organization known as the Service Tool Institute. All companies each month furnish the Service Tool Institute with the dollar volume of sales during the month.

The Court: Just state the sales.

By Mr. Coltman:

Q. You are a member reporting to this Institute? A. Yes.

Q. Do those records show the percentage of your wrenches sold with respect to the total number of companies reporting? A. Yes.

The Court: What are you trying to show by this line of inquiry?

Mr. Coltman: The importance of the Sturtevant wrench on the market and how this Automotive Company sought to get claims reading upon the Sturtevant wrench.

78 The Court: I think you have pursued this sufficiently. I don't think the importance of the Sturtevant wrench on the market is at all relevant. I have allowed you to go on at some length because counsel for defendant has not objected.

By Mr. Coltman:

Q. Give the statement of the percentage. A. Between 65 and 75 percent.

Q. That is the torque wrench involved here in issue? A. Yes.

Q. Did you ever file an application for a patent before filing your original application No. 198,375 on March 28, 1938 which resulted in patent No. 2,383,707? A. Yes.

Q. When? A. In 1920.

Q. What was the subject matter?

The Court: The patent speaks for itself. You may offer it in evidence if you want to.

Mr. Coltman: I don't intend to offer it in evidence.

The Court: Then do not pursue it.

Frankly, I would like to confine the testimony very strictly to the issues of this case.

By Mr. Coltman:

Q. A patent was issued on this application? A. Yes.

Q. Did you understand the claims of that patent at the time it issued? A. I did not.

79 Q. When you filed your application, Serial No. 198,373, which resulted in your original patent No. 2,283,707, what did you explain to your patent counsel as being your invention? A. I explained to counsel the operation of the wrench, such as is shown in Figures 1, 2, 3, and 4 in the patent.

Q. At the time you filed this application did you have any knowledge of patent claims? A. I did not.

Q. Were you advised of the final rejection of the claims in your original application? A. Yes.

Q. Who advised you of this final rejection? A. The patent attorney.

Q. Do you recall in substance the conversation you had with your counsel at that time? A. No.

Q. Did he tell you what had been allowed and what had not been allowed? A. Yes.

Q. Did you understand what he was talking about? A. No, definitely not.

Q. Did you instruct him to prepare and file an appeal to the Board of Appeals in the Patent Office? A. Yes.

80 Q. After this appeal had been pursued were you advised of the outcome? A. Yes.

Q. Do you remember the conversation with your counsel? A. No.

Q. Did he tell you that there was a possibility of taking another appeal in that case? A. Yes.

Q. Why didn't you pursue that appeal? A. I was apprised of the fact that I had certain claims allowed and I saw no reason for additional claims.

Q. Did you think that the claims allowed covered your torque wrench as shown in Figs. 1, 2 and 3? A. I definitely did.

Q. When did you ascertain that your patent No. 2,283,707 did not cover a torque wrench shown in Figs. 1, 2 and 3? A. In the latter part of February or the early part of March, 1943.

Q. Will you tell the circumstances? A. Mr. W. W. Daniels, of the Snap-on Tool Corporation, of Kenosha, Wisconsin, phoned me and told me that the patent that I had was being offered as, well, as I put it, evidence in a suit between the Snap-on Tool Corporation and the Automotive Maintenance Machinery Company of North Chicago.

Q. What did you do when you met Mr. Daniels
81 and was told of this fact? A. Will you repeat the question?

Q. What did you do thereafter when you met Mr. Daniels and were advised of this fact? A. I immediately contacted my attorney concerning my patent.

Q. Were you then dealing with the same patent counsel who had previously dealt with you? A. Not the original counsel.

Q. Who was the original counsel? A. Wilbur Olson, of Thiess, Olson and Mecklenburger, of Chicago.

Q. Is he now employed by that company? A. He is not. He is employed by the Scheaffer Pen Company as production supervisor.

Q. You then contacted a different individual of the firm of Thiess, Olson & Mecklenburger in connection with being advised that that patent did not cover the patent shown here, in Figs. 1, 2 and 3. Is that correct? A. That is correct.

Q. Who was that individual?

The Court: I think it doesn't make any difference. He changed lawyers and that is all we need to know. He became convinced he was badly advised by his previous counsel and he got new counsel, and I think that is enough along that line.

82 By Mr. Coltman:

A. After patent issued, your original patent, No. 2,283,-707, on May 19, 1942, did you apply the number of this patent to your wrenches? A. Yes, I did.

Q. I hand you a wrench and ask you if you can identify it?

Mr. Coltman: Will the reported please mark this Plaintiff's Exhibit 12 for identification?

(Said wrench was marked "Plaintiff's Exhibit 12 for identification.")

By Mr. Coltman:

Q. I hand you this wrench marked for identification as Plaintiff's Exhibit 12 and ask if you can identify it? A. Yes.

Q. Go ahead and identify it. A. It can be identified by the patent numbers stamped on it.

Q. Who manufactures that wrench? A. P. A. Sturtevant Company.

Q. Is that a torque wrench made and sold by the P. A. Sturtevant Company under your patent No. 2,283,707, as you understand it? A. Yes, it is.

83 Q. When did you first acquire that particular wrench? A. I purchased it from Sears Roebuck in Washington, D. C. on October 9, 1945.

Q. Just a few days ago? A. That is right.

The Court: What are you trying to show by this line of testimony?

Mr. Coltman: I want to show Your Honor that this plaintiff did not understand when his patent issued—

The Court: Yes, but by the last question and answer?

Mr. Coltman: That he has continued to market his device with this patent number believing that this patent covers the type of structure shown in Figs. 1, 2 and 3.

The Court: You need not pursue that. That point does not impress the Court because when a manufacturer puts a patent on a device he does not indicate thereby that he contends that every feature of the device is covered by that particular patent. That particular patent may cover only one feature of the device that is being manufactured, and yet the patent number may be attached to it.

Mr. Coltman: It might also imply the manufacturer believes he has claims in that patent or that patent would be infringed by the manufacture and sale of that particular device.

The Court: Yes, but it may be infringed only as to one
minor feature of the device, so the Court is not well
84 impressed with that testimony. I do not think it has
any probative value.

Mr. Coltman: I won't pursue it further, Your Honor.

May I offer that wrench for the purpose of the record?

The Court: Yes.

Mr. Coltman: I offer in evidence this wrench identified by the witness as Plaintiff's Exhibit 12.

The Court: It may be admitted.

(Said wrench, heretofore marked "Plaintiff's Exhibit 12 for identification", was received in evidence.)

By Mr. Coltman:

Q. What advice was given to you when you came to your counsel in February or March, 1943 and asked whether this patent of yours, No. 2,283,707 would be infringed or cover the structures shown in Figs. 1, 2 and 3? A. I didn't get the question.

The Court: Read the pending question.

(Thereupon, the pending question was read by the reporter.)

The Witness: I was told that it would not infringe it.

By Mr. Coltman:

Q. Then what did you do after you received that advice? What instructions did you give to your counsel?

The Court: I assume he instructed counsel to apply for a reissue. That is obvious. Proceed from that point.

85 Mr. Coltman: That is all.

Cross-examination

By Mr. Cochran:

Q. Mr. Sturtevant, I show you a copy of your patent No. 2,283,707, and I will ask you whether the flexible blade 12 is pivotally connected to the head 10.

The Court: What figure?

Mr. Cochran: Figure 2, Your Honor, will be the most convenient.

By Mr. Cochran:

Q. My question is, the flexible blade 12 is pivotally connected to the head 10. A. Yes.

Q. It is pivotally connected? A. Yes.

Q. Isn't it true that it is rigidly connected by the rivets 14 to the head 10?

The Court: What figure?

Mr. Cochran: 10.

The Witness: Not in the sense of expression that I would use "pivots." One end of it is rigidly connected but the blade itself, 12, which is not one end of it but the entire blade, is pivotally connected.

By Mr. Cochran:

86 Q. But the end of the blade which is connected to the member 10 is rigidly connected to member 10? A. Yes.

Q. The end of the blade which is connected to member 10 is rigidly connected at that point? A. Yes.

Q. Considering the other end of the blade now, that end (indicating), let's call it the outer end, that is rigidly connected by means of the rivet 20 to the end 19 of the handle, isn't that true? A. Yes.

Q. Then is there any pivotal movement of one side of your wrench on any other part of it?

Mr. Coltman: I can't see the pertinency of this line of cross-examination because the claims in reissue do not recite that the work-engaging member should be pivotally connected to the spring bar.

The Court: The Court notes that counsel uses the expression "pivotally connected", while the claim reissue uses the phrase "pivotally supported." Is there any distinction between the two?

Mr. Coltman: Yes, Your Honor, there is.

Mr. Cochran: I wouldn't think so.

The Court: I am not going to instruct counsel as to how to frame his questions, and if counsel desires to use the term "pivotally connected" he has a right to do so.

87 Mr. Cochran: I would prefer to confine it to the exact language of the claim, Your Honor. I meant to do that. I was careless in not doing so.

By Mr. Cochran:

Q. Is there any part of your wrench that is pivotally supported on another part? A. Yes.

Q. What part is pivotally supported on what other part? A. The head member 19 is pivotally supported on the work-engaging member 10.

Q. 19 is pivotally supported on the work-engaging member 10? Is that your answer?

The Court: Pardon me. Which one of the exhibits is illustrated by Figure 2 that counsel is referring to?

(Counsel handed document to the Court.)

The Court: You just now handed me Plaintiff's Exhibit 8.

Mr. Cochran: Yes, sir.

The Court: Proceed.

By Mr. Cochran:

Q. I understand your answer is that the work-engaging member is pivotally supported adjacent to one end of the handle? A. Yes.

The Court: May I interject a question at this time? Would it interfere with your examination if I did so?

88 Mr. Cochran: Not at all.

The Court: Will you point out to the Court where on Plaintiff's Exhibit 8 is the pivotally supported member and where is the pivotal support?

The Witness: The pivotal supporting member is this member here (indicating).

The Court: Where is the pivot?

The Witness: Right here; it pivots right around here; it swings; it pivots.

May I use the smaller wrench to show you?

The Court: Certainly.

The Witness: As a force is applied to the handle, this member pivots around this center.

By Mr. Cochran:

Q. Due to the distortion of the flexible member? A. That is right.

Q. That is the only sense in which it pivots? A. That is right.

The Court: Of course, I am not a mechanic or an engineer, but this is a novel use of the word "pivot" to the Court.

Mr. Coltman: That is one of the reasons why we wished to show the fact that when this wrench became important on the market and the effort of the assignee of the Zimmerman patent to cover—

The Court: The Court is not interested in that for
89 the moment. The Court is trying to ascertain the
meaning of the words in the claim of "pivotally supported adjacent one end of said handle member."

The Court assumed that meant that one side of the device was pivotally supported on some other part of the device. Is that the construction of the Patent Office of that phrase?

Mr. Cochran: That is right, Your Honor.

Mr. Coltman: We will clear up that point when we put the next witness on, who will go into the claims.

The Court: I do not want to interfere with your order of proof, but I thought it might be helpful to counsel if I made this suggestion so that counsel may know how it impresses the Court.

Mr. Coltman: We will be prepared for that.

By Mr. Cochran:

Q. Mr. Sturtevant, I think in your testimony regarding the so-called change of patent counsel, when you found out about the so-called inadvertence in your application, you said you consulted other counsel than the one who obtained your patent.

Wasn't it the same counsel? Didn't you go back to the same firm that you had given power of attorney to? You haven't changed counsel yet, have you? A. From the original counsel that I described the tool to, the invention, was an entirely different counsel that handled it at
90 a later date.

Q. The man you talked to was a different man, but of the same firm? A. The same firm.

Q. You still have the same firm of attorneys for your attorneys, haven't you? A. Yes.

Q. That is all I wanted to clear up, that you hadn't actually gone to some other firm for your present case? A. That is right.

* * * * * * * * * * *

91 Thereupon—**Harry H. van Deventer** was called as a witness by and on behalf of the plaintiff, and, having been first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Coltman:

Q. Please state your name. A. Harry H. van Deventer.

Q. Age? A. 68.

Q. Residence? A. 141 44th Street, New York City.

Q. Occupation? A. I am a consulting engineer and patent attorney.

Q. Have you testified as a patent expert previously in litigation involving patents? A. Yes, I have.

Q. Will you kindly enumerate some of the cases?

The Court: Is there any dispute as to the number of cases this witness has testified to?

Mr. Cochran: No, there is no dispute as to his qualifications at all.

92 Mr. Coltman: The Court will accept him as a man skilled in the patent art?

The Court: Yes.

Mr. Cochran: He might ask his educational qualifications instead of the cases he has testified in.

The Court: There is no dispute as to the witness' qualifications to testify as a patent expert? Are you putting him on as a patent expert?

Mr. Coltman: Yes, sir.

The Court: If that is not disputed I will accept him.

Mr. Cochran: Not as a mechanical engineer expert?

Mr. Coltman: Yes. I want him to develop that.

Mr. Cochran: Ask about his educational qualifications.

By Mr. Coltman:

Q. Other than these cases that you have pointed out to the Court in which you acted as an expert, will you tell us your previous experience that will qualify you to testify in this case involving torque wrenches? A. I have been in continuous practice as a consulting engineer for 40 years, and for about 34 years as a patent attorney.

The Court: That is sufficient. The witness is qualified.

By Mr. Coltman:

93 Q. And you are registered as a patent solicitor before the Patent Office? A. That is right, in 1911.

Q. You have prosecuted many applications for letters patent?

The Court: He is qualified, so do not qualify him any further.

By Mr. Coltman:

Q. Have you read and studied the Sturtevant reissue application Serial No. 479,300 involved in this proceeding? A. Yes, I have.

Q. Would you say that you understand the disclosures of this reissue application and what the reissue claims purport to cover? A. Yes.

Q. Have you read and studied original patent No. 2,283,707 granted to Mr. Sturtevant here? A. Yes, I have.

Q. Would you say you understand what the original patent purported to disclose and claim? A. Yes.

Q. Do you have any opinion as to whether reissue claims 3 to 8, inclusive, read upon the Sturtevant original patent No. 2,283,707 and his application Serial No. 198,375? A. Yes, I have an opinion.

The Court: Is that a matter for expert testimony? That is a matter for argument.

94 Mr. Cochran: It is a matter for the Court to determine, of course.

The Court: If there is no objection I will let him testify.

Mr. Cochran: Your Honor, in these patent cases we let many things come through that ordinarily would be objected to.

The Court: I believe in trying patent cases no differently from any other case because in that way you can abbreviate trials and arrive at a decision of the issues much more expeditiously.

Mr. Cochran: What the application discloses can be determined from an inspection of the application.

The Court: If it is a question of explaining the disclosure, explaining scientific terms used, that would be proper subject for expert testimony, but I do not understand that it is competent for an expert witness to give an opinion of the question as to whether claims read on the disclosure.

Mr. Coltman: All right then, Your Honor.

By Mr. Coltman:

Q. Will you kindly explain the language of reissue claims 3 to 8, inclusive, here involved and refer to either the original patent or the reissue patent, and any of the physical exhibits that have been offered in evidence? A. This
reissue claim 3 originated as claim 68 in the Zimmer-
95 man application and became claim 63 of the
Zimmerman patent.

It starts off by reciting, "A torque measuring wrench," and states as the first element a handle member.

The Court: May I interrupt for a moment? I do not think anything is in dispute except two elements of the claim, and perhaps it would be less confusing if the witness confined himself to those particular elements in dispute. I do not think it would be helpful to have a general dissertation on every element of the claim.

Mr. Coltman: I think, Your Honor, you cannot take one element and pursue it alone.

The Court: The Court is trying to help counsel. Go ahead, but be very brief.

A. We have a handle member and a work-engaging member pivotally supported adjacent one end of the handle member, and I believe, Your Honor, that one of the main difficulties in this case is interpreting that phrase, "work-engaging member pivotally supported adjacent one end of said handle member."

That phrase has been used throughout these claims to set forth the functional relationship of the work-engaging member and not the mechanical relationship.

In other words, the word "pivotally" is used more as an
adverb.
96 The Patent Office doesn't evidence any recogni-
tion of that fact but attempts to define the word
"pivot" as a noun.

The Court: This phrase in the claim reads as follows: "The work engaging member pivotally supported adjacent one end of said handle member."

Does not that mean that there is a pivotal support as between the work-engaging member and the end of the handle member?

The Witness: No, Your Honor, because that mechanical or structural relationship could be carried on in a number of different ways.

If the claim stopped right there with that phrase and did not go any further it wouldn't define any structure for accomplishing this relationship, but the claim goes on to recite a spring bar and how it is associated with the other parts to provide the structure for accomplishing this pivotal support.

The very next element in the claim is "a spring bar yieldably opposing the relative rock movement of the work-engaging member and the handle member."

I think perhaps it would help Your Honor to consider that that gate here in the courtroom is pivotally supported adjacent the rail. We haven't said anything about hinges. I can put a set of hinges on it. I can support from the floor and it will still be adjacent to the railing.

97 The Court: Where is the pivotal support in the exhibit concerning which you have testified?

The Witness: The minute you put this wrench, Plaintiff's Exhibit 5, on the work, as I am now placing it on this that we have here, and begin to move the handle, the handle pivots here round this work-engaging member. That is the meaning of that language in the claim.

The Court: I do not want to interfere with your examination of the witness too much.

Mr. Coltman: I am very glad to have you ask those questions, Your Honor, because it develops the case rather rapidly for me.

The Witness: The controversy, Your Honor, as I see it in the record—

The Court: No. I do not think you should go into that. You are a witness, not a counsel.

The Witness: The point I wanted to make was that I might be placed in pivotal relationship to the Washington Monument, for example, never pivoted on it or in it, and "adjacent" is a word in that claim which I think means spaced apart, to one side.

By Mr. Coltman:

Q. Without interrupting you, may I ask at this particular point, does that second element of claim 3 require that the
work-engaging member be actually supported on the
98 handle? Is there anything said about supporting
the work-engaging member on the handle? A. No.

Q. Or in the handle? A. No, nothing is said about that.

Q. Proceed with the claim. A. The next element of the claim is a normally straight spring bar which is shown at 12 in the patent yieldably opposing relative rock movement of said work-engaging member and said handle member.

Then the spring bar operates that way when the device is in use.

Then the claim recites that the spring bar has one end fixedly mounted in said work-engaging member and extending cross the axis of rotation of said work-engaging member, which it does, and the claim says that the spring bar has its opposite end arranged to have a force applied thereto through said handle member, which does occur when the device is in use.

And the claim further includes means which are shown in the patent at 13 and 18, which is the dial and the pointer, responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

We have all of those elements in the reissue claim 3,
99 and they are all shown in Figs. 1, 2 and 3 of the
original patent and the reissue application.

The Court: The whole issue comes down to the meaning of the words "pivotally supported," is that correct?

Mr. Cochran: That is right.

Mr. Coltman: Whether it is a structural relation or functional relation set out.

The Court: It is more than that. It is the meaning of the phrase, as I see it.

Mr. Coltman: How it is used in that claim in conjunction with the entire claim, what structure does that claim cover.

The Court: Of course the question is, what structure does the claim cover, but the particular feature of the controversy is the meaning of the words "pivotally supported."

Mr. Coltman: As used in the claim.

The Court: Why, of course.

Mr. Coltman: Merely to advise the Court, Your Honor, I would like to have this witness, as a patent expert, show the Court how that claim reads upon the structure shown in the original patent. I think it is pertinent and I think it is very helpful, and I would like to have that in the record.

By Mr. Coltman:

Q. Will you kindly show the Court how you believe that reissue claim 3 reads upon the torque wrench disclosed in Figs. 1, 2 and 3 of the original patent?

The Court: Really there is no dispute as to that.

Mr. Cochran: Your Honor, I could object all along to his expressing any opinion as to whether the claim is supported by the disclosure.

The Court: No, I think you were sound in your objection to him expressing the general opinion as to whether the claim reads on the disclosure, but I think an expert has a right to compare the disclosure with the claims in order to show how, element by element, the claim reads on the disclosure. I think that is the proper function of an expert.

I do think, however, that the necessity of that is doubtful in this particular instance because I understand it is admitted that the claim reads on the disclosure except for two features of the claim, so it is not necessary for him to analyze the claim, one element at a time and show where each element is disclosed. I suggest you confine your question to the two elements in dispute.

Mr. Coltman: I would like to show how the entire claim reads, element for element, on that torque wrench.

The Court: I understand Mr. Cochran does not dispute that it does read.

Mr. Coltman: I don't think he has made that concession.
I would like to show how the second disputed
101 element reads upon that structure.

The Court: Yes, and I suggest you confine yourself to that.

Mr. Coltman: I would like to have the record complete in that regard, Your Honor, so we may refer to it.

Mr. Cochran: Reading the claim now I can't see that there is anything there to be objected to, Your Honor.

The Court: Except the second element.

Mr. Cochran: You mean the pivotally supported?

The Court: Yes.

Mr. Cochran: And adjacent to the handle member.

Mr. Coltman: It is conceded that claim 3 reads on the disclosure except for the second element, namely, a work-engaging member pivotally supported with one end adjacent the handle member.

Mr. Cochran: I would like to read it carefully, going along.

The Court: Suppose we take a moment for you to read that.

Mr. Cochran: I have finished reading the claim and I will stand by the statement made by Your Honor.

The Court: Very well.

By Mr. Coltman:

Q. Have you any reason why you believe the language "work-engaging member pivotally supported
102 adjacent one end of said handle member" reads upon the wrench shown in Figs. 1, 2 and 3 or the disclosure

of Sturtevant's original patent or his reissue application?

A. I have before me a copy of Patent 2,385,591, the application for which was co-pending with this reissue application of Sturtevant's.

Mr. Cochran: I object to the testimony on that patent, Your Honor, as not having any bearing.

It is something the examiner did later on in another case, which is inconsistent with what he did in the present case.

Mr. Coltman: I think it is very persuasive.

The Court: I will take it.

A. The first patent out of which grew the reissue and this patent No. 2,385,591, which I will call the second patent, disclosed torque wrenches which are identical in every respect except that in the second patent is shown what is termed a quick release device for the handle with which we are not concerned here. These wrenches are identical. It is very easy to make—

The Court: You were asked a question.

Mr. Coltman: I would like to have him proceed with his explanation, Your Honor.

The Witness: It is comparatively easy to make that comparison because the parts 10, 19, 12 and 22 in
103 both patents bear the same numerals in both patents.
In looking at that patent—

The Court: I think that is enough along that line. You have given an answer.

Mr. Coltman: I would like to have him point out, for the purposes of the record, the places in this patent, the spcification, and claims where the same language has been permitted to describe exactly the same structure.

The Court: How is that relevant?

Mr. Coltman: I think it is very relevant, Your Honor. It is persuasive that this language is readable upon this structure.

If the same examiner raises a doubt, raises the question, and then later takes the same structure and permits the same language and allows a patent to issue from the Patent

Office with that language, as describing the same structure, I think it is very persuasive in this case that the language is readable upon the structure.

The Court: The examiner might have made an error in the second case.

Mr. Coltman: That would be all right. Your Honor might raise that question if the second patent had been issued before the controversy here arose, but while this controversy is pending, and after the heated argument between the plaintiff on the one hand and the Patent Office on
104 the other that this language is not readable, the examiner, being fully cognizant of the pendency of this case, then permits that language, I think it is pertinent.

The Court: What do you say?

Mr. Cochran: The second patent we are talking about is directed almost entirely to the break-handle; when certain force is exerted then the handle will break or release.

Now the examiner lets creep into this case an error. He lets the plaintiff use the language which we objected to in the early case. I can only speculate that it was inadvertent, that his attention was drawn to the handle.

The Court: I will sustain the objection.

Mr. Coltman: I don't think there was any error committed.

The Court: Make your offer of proof.

Mr. Coltman: I would like to call the Court's attention on the record that there could not have been any error or—

The Court: Make your offer of proof.

Mr. Coltman: I will make my offer of proof, that the language used in Patent 2,385,591 is exactly the same as in controversy here in reissue claims 3 to 8, inclusive; covers the same structure. It is repeatedly used throughout the specifications in at least 15 or 20 different places.

The Court: The patent itself has been offered in evidence, has it not?

105 Mr. Coltman: It has not.

The Court: Offer the patent in evidence.

Mr. Coltman: I will offer a certified copy of United States Letters Patent 2,385,591 in evidence as Plaintiff's Exhibit 13.

Mr. Cochran: I object to it as being irrelevant.

The Court: I will overrule the objection. It may be admitted.

(Letters Patent 2,385,591 was marked "Plaintiff's Exhibit No. 13," and received in evidence.)

The Court: But I will not hear any expert testimony explaining it. I doubt the probative value, but in order to permit you to make your record I will allow you to put the patent in evidence.

Mr. Coltman: Does Your Honor intend to recess at 3:30?

The Court: Yes.

Mr. Coltman: I wish to go into the question of identity of invention, or same invention, and it is going to take some time.

The Court: You may begin with that.

By Mr. Coltman:

Q. Mr. van Deventer, you have said you have studied the original Sturtevant patent here, No. 2,283,707.

106 Will you kindly refer to the specifications and drawing of this patent and state what the patentee intended to secure as his invention?

Mr. Cochran: I can't see how the witness is qualified to say what a patentee's intentions were.

The Court: Objection sustained.

Mr. Coltman: I believe it is pertinent, Your Honor, to go into that.

The Court: It may be pertinent, but it is irrelevant.

Mr. Coltman: It is an issue in this case.

The Court: Yes, it is, but this is not competent testimony. We still apply the rules of evidence as to competency.

How could this witness testify to the operations of the inventor's mind? That is what you are asking.

Mr. Coltman: I am not asking that. I am just asking from the disclosure in that patent what that patent intended to cover.

The Court: You can't ask somebody else's intention.

You can ask this witness to construe the specifications but you cannot inquire of this witness concerning the inventor's intention.

By Mr. Coltman:

Q. What does this patent cover or purport to cover?

The Court: No. I will sustain the objection to that.

By Mr. Coltman:

107 Q. What does the patent disclose?

Mr. Cochran: The patent shows what it discloses. It is not a matter of testimony, it seems to me. It is on the face of it.

The Court: It seems to me that an expert witness may give expert testimony explaining the disclosure of a patent if an explanation of technical concepts or technical terms used in the patent would be helpful, but it also seems to me that in order to elicit testimony of this kind the witness ought not to be asked a general question such as you have addressed to him, and permit him to deliver a lecture on the subject. It seems to me specific questions ought to be addressed to him.

By Mr. Coltman:

Mr. van Deventer, point out wherein, in original Patent 2,283,707, the element "A work-engaging member pivotally supported adjacent one end of said handle member" is disclosed.

The Court: That is proper.

A. I will now read lines 5 to 13 inclusive, Column 1, page 1 of the patent—

The Court: No, it is not necessary for you to read it. Just state.

The Witness: I will refer to them. This statement in here teaches me that this measuring wrench has a
108 head, having an object-engaging formation, which is the work-engaging member, as expressed in some of the claims in the reissue application; and that there is a measuring beam extending from and fixed to the said head and that there is a handle on the free end of that measuring beam and a graduated dial and pointer to indicate the tangential force applied to the handle.

The Court: I think you are going beyond the question. The question is, where is the disclosure of a pivotal support member?

The Witness: In order for that to operate the work-engaging member, or object, or head, it must be pivotally supported in respect to the dial.

The Court: In other words, that is a matter of inference from the description.

The Witness: Yes, it is.

Mr. Coltman: Inherently disclosed.

The Witness: It could not be operated if it wasn't in pivotal relation.

We also have on page 2, line 20, a reference to Fig. 1, which the patent says embodies the features of the invention, and I refer to Fig. 1, side elevational view thereof, which is Fig. 2, and I see a torque wrench that would not operate unless the work-engaging member was pivotally supported in relation to the handle.

The Court: I think the only issue in controversy
109 is the meaning of the words "pivotally supported."

Of course there is a disclosure which would support the meaning that you attach to the phrase "pivotally supported." The difficulty is that the Patent Office attaches a different meaning to the phrase "pivotally supported."

It would be helpful if you could show that the disclosure supports the Patent Office meaning of the phrase "pivotally supported," but it is not helping the Court to show that there is a disclosure that supports the meaning you attach to that phrase because that is not disputed.

Mr. Cochran: I can hardly conceive of what meaning plaintiff has in mind for this pivotal relationship as applied to his application, so I would rather not say that I can understand it or concede anything about it, Your Honor.

To my mind there could be no objection.

The Court: As I understand it, the plaintiff contends that because the work-engaging member engages the work, and it is a rotary motion resulting when the wrench is in operation that meets the element to support it.

Mr. Coltman: That is right.

The Court: And there is no dispute of fact that this is the way the wrench operates?

Mr. Cochran: That is right.

The Court: But your contention is that that is not a proper meaning to attach to the phrase "pivotally supported?"

110 Mr. Cochran: That is right.

Mr. Coltman: Your Honor, I would like to point out, if I may, that in the Zimmerman patent there were other claims which said that the work-engaging member was pivoted in the handle. We didn't try to copy that; we admit we didn't.

The Court: All I am trying to do is narrow the issues, and you are referring to something else.

Mr. Coltman: Well, there is in the law of patents the doctrine of claim differentiation.

The Court: I am familiar with the doctrine. All I am trying to do is to ascertain what is in controvery between the parties. That is all I am referring to at this moment.

Mr. Coltman: I think it is competent to use an expert to show what the normal, ordinary meaning of those words in the mechanical field is.

The Court: Why of course it is. I am trying to help counsel by calling their attention to the fact that it is of no probative value to demonstrate that in the disclosure that the disclosure would support the phrase "pivotally supported" in accordance with the construction you place upon it, because that is not in dispute.

You have to show one of two things: Either that the meaning of that phrase attached to it by the Patent Office is erroneous, or that there is a disclosure on which that meaning will read.

111 Mr. Coltman: May I, just before we adjourn, say one thing? It wasn't my purpose in trying this case to take each and every little point raised by the examiner in this case and show where he was wrong. That would be bickering with the examiner.

The Court: There is only one point in the case, aside from this mistake, accident, and inadvertence, and I suggest you address yourself solely to that point, and that point is the meaning of the words "pivotally supported;" and second, whether you can show that the meaning attached to it by the Patent Office is erroneous, or you can show that there is a disclosure on which the claim is protected by the Patent Office. That is all there is, except on the issue of mistake, inadvertence and accident.

* * * * * * * * * *

115 By Mr. Coltman:

Q. Mr. Van Deventer, is a bearing and pin necessary for the existence of a pivotal support? A. No, sir.

Q. Do you know of any devices in the mechanical arts in addition to the plaintiff's torque wrench here involved which have members pivotally supported without
116 pins and bearings? A. Yes, I do; a great many devices.

Q. Will you mention some of them? A. We have clocks on which the pendulum is pivotally supported in relation to the other parts, and we have electric bells; we have thermostats, compasses, electroscopes, telegraph keys and a large number of devices in which one part is pivotally supported which have no pivots and no bearing in the pivot.

Q. Do you have any with you here to show to the Court just what you mean when you say it is not necessary to have a bearing and a pin to have a pivotal support? A. I have here, Your Honor, an old clock movement. This pendulum here is of course pivotally supported, and it swings in an arc like all pendulums swing. Instead of being hung on a pivot and bearing it is hung on this steel spring.

You can see the steel spring right here that pivotally supports this pendulum so that it swings in an arc around its pivot. The witness is now showing Mr. Cochran the clock movement.

The Court: No, no; speak in the first person.

The Witness: I am now showing Mr. Cochran the clock movement in which the pendulum is pivotally supported by means of a flat steel spring. This pendulum oscillates in the arc of a circle around the point of suspension,
117 which is the pivot point.

By Mr. Coltman:

Q. Do you call the support for that pendulum a pivotal support? A. Oh, I do.

Q. Is it known in the mechanical art to be a pivotal support? A. Yes, it is commonly termed that in connection with many devices.

Q. I am asking about this particular clockworks and this pendulum. A. Yes.

The Court: I should like to see again the patent from which the claims were copied. Have you a copy of it here?

Mr. Coltman: Yes, sir.

Mr. Cochran: It is also one of the items in the Zimmerman patent.

(Counsel hands document to the Court.)

Mr. Coltman: This clock works referred to by the witness is offered in evidence as Plaintiff's Exhibit 14.

Mr. Cochran: No objection.

The Court: It may be admitted.

(The clock works referred to were marked "Plaintiff's Exhibit No. 14" and received in evidence.)

By Mr. Coltman:

118 Q. Have you another device that may be used to illustrate a pivotal mounting without use of a bearing and a pin? A. Yes, I have. I got this Friday after Court adjourned, thinking it might be helpful to Your Honor.

Here is an electric bell movement in which the armature, the only movable part of the bell, is pivotally supported adjacent to the magnet coil, and it swings.

Q. Point out to the Court the magnet coil and the armature—the members individually. A. The armature is the movable part.

The Court: Point to the armature.

The Witness: This is the armature (indicating); I have my finger on it; and the coil is the only coil in it. That is adjacent to the armature.

By Mr. Coltman:

Q. Will you point out the member or part that is the pivotal mounting in this device? A. The pivotal mounting, Your Honor, is this bronze spring which is attached to the framework and extends forward and the other end is attached to the armature.

Q. Is that a leaf spring as distinguished from a coil spring? A. Yes.

The Court: It is not quite clear to the Court what member of this structure you say is pivotally supported.
119 Just name it.

The Witness: The armature, which is the only movable member in that structure.

By Mr. Coltman:

Q. And the armature has its outer end curved slightly bearing against the inside of the casing? A. That is right. That is the clapper of the bell, and when that moves back and forth on its pivotal support the outer end of it strikes the gong.

Q. This is a regular electric bell? A. That is right.

Q. And when the coil is energized the armature vibrates? A. That is right.

Q. Pivots about its mounting? A. That is right. I have here another bell in which that same pivotal structure is used. In this bell the pivot spring is of bronze.

The armature swings back and forth and has the bell clapper on the outer end. This one perhaps, Your Honor, is a little easier to see than that. It is a more open type of construction.

The Court: Of course, Mr. Coltman, in these devices concerning which the witness has just testified, whatever the witness states is a pivotal support is a part of the
120 patentee's structure, whereas in the application in suit the so-called pivotal support is not in the device disclosed in the application but is of the work engaged by the device on which a patent is claimed. It seems to the Court that makes a substantial difference.

Mr. Coltman: In the reissue claims before the Court the work-engaging member is recited as being pivotally supported adjacent the handle member.

The element, if the Court please, that pivotally supports the work-engaging member adjacent one end of the handle is a leaf spring, namely, the spring bar. That functions to carry the work-engaging member in pivotally supported relation adjacent this handle. It is not necessary to have a pin and a bearing to provide a pivotal support.

I am trying to show by this testimony that in the mechanical arts the pin and bearing are not recognized as a requisite to pivotal mounting.

The Court: I think you have shown that and I do not think you need pursue the subject, but as I understand it, there is no pivotal support in the device disclosed in the application until and unless the device is attached to the work and engages the work, and then there is a pivotal function between the work and the device.

Mr. Coltman: And the handle member.

The Court: Yes. The pivotal support I appreci-
121 ate need not be a bearing and a pin. It may be, as
the witness had just testified, any one of other contrivances, but it seems to the Court that it must be part of the structure disclosed in the application and sought to be covered by the claims, whereas in this case the pivotal support, even on your theory, does not come into existence until the apparatus engages the work.

Mr. Coltman: That is the only time any relation in a structure comes into existence, and these claims, Your Honor, if I may refer to them specifically—

The Court: Perhaps I have not made my point clear.

I am trying to indicate that while his testimony just given is convincing to prove that a bearing and a pin are not the only types of pivotal support it still does not meet, so far as the Court's mind is concerned, the suggestion that there is no pivotal support of any kind in the structure covered by the application.

Mr. Coltman: The claim only covers the condition of operation of the wrench, not when it is held in mid-air like this (indicating). The claim does not cover that condition.

The claim recites, in addition to the controverted element, a "normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member."

The only time that opposes relative rock movement
122 is when it is put into operation.

The Court: Probably. Prove the case in your own way.

Mr. Coltman: And I would like to say the last element is only described in its operative relation because it says, "and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members," and it is not responsive to anything until the spring bar flexes and that is when the wrench is put into use.

The Court: You may proceed. I just indicated my tentative impression merely as an aid to you in presenting your case.

Mr. Coltman: I would like to make these two bells of record and offer same in evidence as Plaintiff's Exhibits 15-A and 15-B.

The Court: Any objection?

Mr. Cochran: No objection.

Mr. Coltman: The first bell is 15-A and the second bell is 15-B.

(The bells referred to were marked "Plaintiff's Exhibits Nos. 15-A and 15-B" and received in evidence.)

By Mr. Coltman:

Q. You referred to the swinging gate in the courtroom
here last Friday. Have you anything to illustrate
123 what you were testifying about in that connection?
A. Yes, I have.

Q. Will you proceed to describe what you have? A. I call Your Honor's attention to the fact that the gate is pivotally supported adjacent the railing and I had this little model made to show that here is a gate which is pivotally supported adjacent to the railing and it has ordinary hinges in it. That is typical of the so-called pin and bearing type of pivot.

Q. Does it employ the type of hinge that is on this courtroom gate? A. Yes.

The Court: You need not enlarge upon that. That is perfectly clear and simple.

Mr. Coltman: Will the reporter please mark this as Plaintiff's Exhibit 16?

(The device referred to was marked "Plaintiff's Exhibit No. 16 for Identification.")

By Mr. Coltman:

Q. You have another device. Will you please proceed with that? A. I have a model of a second little gate and instead of the hinges, such as are on the model I just showed you, this gate is merely hung on a pair of springs.

124 There are no pins and no bearings in the pivotal support of this gate in connection with the railing.

Q. What constitutes the pivotal mounting in that device you have? A. The pivotal mounting is the flat steel springs to which I drew Your Honor's attention, located between the gate and the railing.

Q. I notice you have pulled the gate out from the model. Why did you do that? A. I did that just illustrative of the fact that the springs have nothing to do with the fact that at all times they still furnish the pivotal relationship to which I have just referred.

The Court: In order to simplify this, I do not understand there is any contention on the part of the Commissioner of Patents that there must be a pin and a bearing in order to have a pivotal connection.

Obviously pivotal connections can be any one of several kinds and I do think we are carrying coals to Newcastle.

Mr. Cochran: Your Honor, the Examiner did hold that in order to have a true pivotal mounting, such as you do have in Zimmerman, it is necessary to have bearings or pins or some movement of one part over another and not a mere deformation of a member.

The Court: Do you insist on that at this time?

125 Mr. Cochran: I do to this extent, Your Honor, that the term "pivotal mounting," and "pivotal support" when read in the light of the Zimmerman case must be restricted in that manner. That is my position.

The Court: I thought maybe we could agree that pivotal connection could be any one of several kinds, and if we could agree on that then we would not have to continue this line of testimony.

Mr. Cochran: I don't think I could agree to that, Your Honor; not at this time at least.

The Court: Very well. The Court certainly is not going to hold that pivotal support must be restricted to a pin and bearing. That does not detract from the Court's tentative impression about it, however, that the pivotal support must be between two members of the patented invention.

Mr. Coltman: I offer in evidence at this time the first device testified to as Plaintiff's Exhibit 16 and I offer in evidence the second device as Plaintiff's Exhibit 17.

(The devices referred to were marked "Plaintiff's Exhibits Nos. 16 and 17," and received in evidence.)

The Court: I think you have sufficient evidence on this particular point and anything more will be unnecessarily cumulative.

126 Mr. Coltman: I would like to have in the record a sketch indicating the difference and then I won't ask any other questions.

The Court: The Court is convinced that no more evidence is needed that a pivotal connection would not be necessarily a pin and a bearing.

Mr. Coltman: May I offer this sketch?

The Court: Yes.

By Mr. Coltman:

Q. I will ask you whether you prepared this sketch to indicate the difference between a pivotal mounting employing a pin and a bearing and a pivotal mounting that does not employ a pin and a bearing? A. I did.

Mr. Coltman: I offer in evidence Exhibit 18, the sketch identified by the witness.

Mr. Cochran: No objection.

The Court: It may be received.

(The sketch referred to was marked "Plaintiff's Exhibit No. 18," and received in evidence.)

By Mr. Coltman:

Q. Will you point out the part in the Sturtevant wrench, as shown in this original patent, to which the work-engaging member is operatively connected? Take the patent. A.

That is the spring bar 12, Your Honor, shown in Figs. 1, 2 and 3 of the Sturtevant patent.

127 That spring bar has mounted on one end of it the work-engaging member 10 and when I move that work-engaging member, as I am now doing on this Plaintiff's Exhibit 4, it pivots round and round.

The Court: May I see this?

(Counsel hands exhibit to the Court.)

The Court: Is this the Zimmerman wrench?

Mr. Coltman: This is the Sturtevant wrench.

The Court: The Sturtevant wrench?

Mr. Coltman: Yes.

The Court: We have had sufficient testimony about that. The witness explained on Friday what his theory was as to the pivotal support.

Mr. Coltman: I am going to make a comparison of the Sturtevant wrench with the Zimmerman wrench.

The Court: Make the comparison. I have the testimony in mind that was given on Friday.

By Mr. Coltman:

Q. Will you point out the part in the Zimmerman wrench to which the work-engaging member is operatively connected, referring to Fig. 9 to which the solicitor of patents has called our attention and confined his remarks? A. That is the spring bar 92.

Q. Will you point out the part of the Zimmerman wrench
which provides the relative rock movement between
128 the work-engaging member and the handle member?
A. The spring bar 92.

The Court: Is there a model of the Zimmerman wrench?

Mr. Coltman: Not in evidence as yet, but we have one.

The Court: I think it would be helpful to the court if it could be put in evidence now, if you are going to put it in evidence at all, so that it would facilitate the Court's following the testimony.

Mr. Coltman: I have here two wrenches, if the Court please. The first one I have is an exact duplicate of the Zimmerman wrench shown in Fig. 9, made by the plaintiff. Zimmerman does not make that wrench and market it.

The Court: It is a model intended to cover Figure 9 of the Zimmerman patent?

Mr. Coltman: Exactly.

The Court: Unless there is objection it may be admitted for purposes of illustration.

Mr. Cochran: No objection. I assume it is what counsel says it is. It seems to be, Your Honor.

The Court: It will be admitted solely for purposes of illustration.

Mr. Coltman: I offer that wrench in evidence as Plaintiff's Exhibit 19.

(The model referred to was marked "Plaintiff's Exhibit No. 19, and received in evidence.)

129 Mr. Coltman: The second device I have is the Zimmerman wrench shown in Fig. 9 for illustrative purposes, removing the forward portion of the housing or casing with the pointer and gauge made of the type of Sturtevant, the plaintiff here, and I will explain why that change was made.

The Court: It is not necessary to explain it. Just offer it in evidence.

Is there any objection? It will be admitted for purposes of illustration solely, of course.

Mr. Cochran: I object to it as being any accurate reproduction of Figure 9 or even parts of it, Your Honor.

The Court: That may go to its probative value.

Mr. Cochran: That is my only objection to it.

The Court: It will be admitted solely for purposes of illustration.

Mr. Coltman: I offer it in evidence as Plaintiff's Exhibit 20.

(The model referred to was marked "Plaintiff's Exhibit No. 20," and received in evidence.)

The Court: All the Court wants to see is the pivotal connection in the two parts of the Zimmerman wrench.

Mr. Coltman: We will proceed to that, Your Honor. I may have to ask a few questions.

The Court: No; let us get to the point.

Mr. Coltman: I am making the point. Your Honor has
raised here the question that there is no pivotal sup-
130 port in the plaintiff's device until the device oper-
ates.

The Court: That is right.

Mr. Coltman: And we want to show the Court that there is no pivotal support of any kind in Zimmerman's until it operates, and we have to develop that.

The Court: Do not let us have any preliminaries. Let us get to the point.

By Mr. Coltman:

Q. What medium of measurement does the pointer and the gauge of Zimmerman indicate? A. The flexing of the spring 92 and the relative rock movement between the work-engaging member and the handle.

Q. Why is the spring 92 in the Zimmerman wrench the pivotal support for the work-engaging member? A. Because 92 is the only member which can bring about relative movement between the parts.

The Court: Let me see the Zimmerman wrench. Where is spring 92?

The Witness: Spring 92 is this that lies between the handle and the work-engaging member.

The Court: Where is this pivotal connection?

The Witness: The pivotal connection is in this bar itself.

The Court: May I inquire of Mr. Cochran, what is the
contention of the defendant as to where the pivotal
131 connection is to be found in the Zimmerman device?

The Witness: Your Honor, it is to be found between the portion I am indicating here with my hand and the head portion surrounding. There is a bearing whereby the lower part rotates with relation to the upper part. That is the part which Zimmerman describes as his pivotal support.

The Court: Can you illustrate with this by operating the Zimmerman wrench?

Mr. Coltman: Yes, we can. Will the witness please operate the Zimmerman wrench?

The Witness: Your Honor, if you will look at the work-engaging member, which is where the heads of the two wrenches come together, you will see when I pull on the Zimmerman wrench that the work-engaging member moves relative to the handle.

The Court: Where is the pivotal connection?

Mr. Coltman: So that the Court will see it, show the Court how the spring bar 92 operates.

The Court: Where is the pivotal connection?

The Witness: The pivotal connection is the flexing of this spring bar on which this is mounted.

The only way any motion can be applied to the work in this wrench, that is to say the Zimmerman wrench, is through this spring bar. This casing on here merely encloses the head. It performs no function.

132 The Court: Proceed.

By Mr. Coltman:

Q. You heard Mr. Cochran state last Friday that in Zimmerman the parts 87 and 88 are the pivotal support for the work-engaging member with respect to the handle. Do these parts 87 and 88 of Zimmerman provide any relative rock movement that is the medium of measurement for his gauge to indicate torque applied to the work at the work-engaging member?

Mr. Cochran: I object to that question. It isn't in point at all, Your Honor.

The Court: I must confess the question is so complicated I didn't get it. I will have to have it re-read unless you want to simplify it. I think you should simplify it.

By Mr. Coltman:

Q. Do the parts 87 and 88 in Zimmerman provide any relative rock movement that is the medium of measurement for his gauge to indicate torque? A. No.

The Court: Do they provide any rock movement without specifying the purpose? Do those two parts—that is a simple question—do those two parts, the numbers of which you have given, provide, any rock movement of any kind, for any purpose?

The Witness: They move relative to each other.

Mr. Cochran: That doesn't answer Your Honor's 133 question. He didn't say they rocked relative to each other.

The Court: Do they?

The Witness: If by rocking you mean turning one within the other, yes, but that is not the rock movement of the claim.

The Court: Just answer the question and do not argue. You are a witness; you are not counsel.

By Mr. Coltman:

Q. Do these parts 87 and 88 have any movement at any time except when the wrench is operating? A. No.

Q. Will you refer to Fig. 9 of Zimmerman and state the purpose of extending the housing parts 82 and 83 forward to surround the work-engaging member? A. That housing merely keeps the spring and the work-engaging member from falling out of the wrench.

The Court: The housing performs the customary function of housing.

Mr. Coltman: To encase something.

The Court: Yes. You don't need to enlarge on the obvious.

Mr .Coltman: If the Court will refer to Fig. 9 I would like to point out something with this witness, please.

By Mr. Coltman:

Q. If the slidable connection at 56 is eliminated
134 must the bearing at parts 87 and 88 be eliminated?
A. Yes.

Q. And putting it in the converse, if the bearing at parts 87 and 88 is eliminated must the slidable connection at 96 be eliminated?

Mr. Coltman: I would like to have the Court see what this slidable connection is.

The Witness: Will you read the question?

(Pending question read.)

A. Yes.

By Mr. Coltman:

Q. Will you refer to Plaintiff's Exhibit 20 and explain this device?

The Court: What is the exhibit?

Mr. Coltman: That is the Zimmerman wrench, modified to eliminate the forward part of the housing. A. This wrench comprises a work-engaging member; rigidly secured to the work-engaging member is the spring bar. The spring bar is attached to the handle of the wrench. A dial is attached to the handle portion of the wrench, and a pointer is attached to the head of the work-engaging member.

When the handle is operating the spring bar flexes.

The Court: What are you trying to show, Mr. Coltman?

Mr. Coltman: To show that the Zimmerman wrench is really the Sturtevant Wrench, Your Honor, except
135 for the housing.

The Court: Very well. The housing is immaterial.

Mr. Coltman: It isn't in the claim, or any of the claims.

The Witness: When you pull the handle and the work is engaged the spring flexes and the head of the wrench here, being in pivotal relation to this bar through the handle, it moves the pointer over the dial.

By Mr. Coltman:

Q. Will you operate this exhibit, please?

The Court: He has done that before.

Mr. Coltman: I want to show it operates exactly the same as the other Zimmerman wrench.

The Witness: I am now operating it and the pointer moves over the dial on Exhibit 20.

By Mr. Coltman:

Q. Will you tell the differences between Plaintiff's Exhibit 20 and Plaintiff's Exhibit 19?

The Court: I do not know that that is material. I think you should confine yourself to this question of pivotal support.

Mr. Coltman: If the Court please, the reissue claims do not require the use of Zimmerman's slidable connection 96.

Taking reissue claim 3, for example, which is Zimmerman's claim 33, it is merely said the spring bar has
136 one end fixedly mounted in the work-engaging member substantialy at the pivotal axis thereof with its
other end in slidable engagement with said handle member and having the opposite end arranged—

The Court: I don't want to hear argument at this time. The observation that the Court made was that it isn't evident how this line of testimony is material. I think we are getting far afield.

There is only one question in the case, as I indicated last week. That can be subdivided into two parts, namely, what is the meaning of the words "pivotally supported," and second, is there a disclosure on which those two words can read.

Mr. Coltman: And if the Commissioner's interpretation of the phrase "pivotally mounted" is correct.

I think we have a right to show that the Commissioner's interpretation is wrong.

The Court: Yes, but this testimony doesn't indicate that. Well, proceed with this question.

By Mr. Coltman:

Q. In this Plaintiff's Exhibit 20 have you eliminated the bearing shown as parts 87 and 88 in Fig. 9 of the Zimmerman patent? A. Yes.

Q. And does the Zimmerman device without the bearing operate exactly the same as with the bearing? A.
137 Yes.

Q. Will you go to the file history of plaintiff's original patent 2,283,707, Plaintiff's Exhibit 1, and apply original claim 1 to the structure shown in the drawing?

The Court: Claim 1 is not involved in this case.

Mr. Coltman: The position of the Commissioner with respect to inadvertence is that the plaintiff here cancelled certain claims during the prosecution of his original application and is seeking to recapture them, and we wish to show that there is no recapture at all.

After we finish reading this claim upon the disclosure, the drawing, we will then ask this witness to compare reissue claim 3 with this original claim 1.

The Court: There is no dispute but that claim 1 of the original patent reads on the disclosure. Therefore you do not have to offer testimony on that point. I assume that it does.

Mr. Coltman: Do you concede that?

Mr. Cochran: Claim 1 of the patent?

Mr. Coltman: Yes.

The Court: You mean claim 1 of the application.

Mr. Coltman: That is the original claim 1.

The Court: I beg your pardon. I thought you were inquiring about claim 1 of the patent.

Mr. Coltman: No, Your Honor, that is not pertinent.

138 The Court: That is what I thought. Proceed.

Mr. Cochran: May I suggest the Patent Office has not said that claim 1 of the application was really the claim he is now endeavoring to get. He mentioned claim 6.

Mr. Coltman: Only with respect to claims 9 to 11, inclusive, Mr. Cochran, and now that we have withdrawn claims 9 to 11 claim 6 has no bearing at all in the case for that purpose.

The Court: Yes, but I venture—I am not quite certain of it—the suggestion that you should confine yourself to any claims that were withdrawn, if there were any such claims as correspond to the present claim 3.

Mr. Coltman: We can't do that because there have been no claims withdrawn that correspond to claim 3, and that is what we are trying to show.

The Court: Then you can ask a leading question of the witness. I will permit a leading question.

Mr. Coltman: All right.

By Mr. Coltman:

Q. Did the plaintiff in the prosecution of his original application before the Patent Office present and thereafter cancel any claims of the same scope as reissue claims 3 to 8, inclusive, involved here before this court?

Mr. Cochran: I object because that is a conclusion and requires an interpretation of the two documents, and 139 the witness is not qualified to say that, and furthermore that is the question for the Court to decide.

The Court: I will allow the question because I do not consider that a very material issue here, and I also feel this, that the exhibit is here in evidence and this is a matter of argument, and I don't think that any testimony is necessary on the point because the file wrapper speaks for itself and you can argue from the file wrapper.

I will let this question be answered.

Mr. Cochran: May I say this? The Supreme Court in the case of U. S. Industrial Chemicals vs. Union Carbide Chemicals, decided in 42 Federal said this about expert testimony on reissue claims:

"Although it is the duty of the court to determine for itself by examination of the original and reissue claims whether they are for the same invention it is permissible and often necessary to receive expert evidence to ascertain the meaning of technical or scientific terms so that the court may be aided in understanding not what the instrument means but what it actually says."

The Court: That is the law as the Court understands it and that is the type of expert testimony that I have admitted so far, but I think it would shorten matters by having this question answered. It may be not quite competent but it is not prejudicial. I suppose the answer is no.

140 The Witness: That is correct, Your Honor.

The Court: I must say I think a comparison is a matter of argument either way. The proof must be made by argument from the file wrapper.

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Cross Examination

By Mr. Cochran:

Q. Mr. Van Deventer, I will ask you to refer to Plaintiff's Exhibit 19 which you have said is in correspondence to Zimmerman's specie shown in Figure 9.

You will note in the device that the part corresponding to part 87 of the patent in Figure 9 is mounted within the part 88 for relative rotary movement. Is that true? A. It is located within that part. It is not quite clear to me that it is mounted in that part. It is located in it and one part can move relative to the other.

Q. And there is no space shown between the parts? A. That is right.

Q. Wouldn't you judge from that it is bearing of
141 one part on another? A. Not when you examine the
wrench from the standpoint of what it is supposed to do. That is merely a support to keep the casing from slipping off. You have to support the outer end of that casing

in some way so they put it around the work-engaging member.

Q. Is that speculation on your part or is there anything in the patent that indicates that? A. That is what I see in the patent because that bearing doesn't do anything. It doesn't function in any way during the operation of this wrench.

Q. It forms a pivot for the movement of the head member about the work-engaging member, does it not? A. No.

Q. Is there anything in the patent that supports your statement that it is not a pivotal support of one part on another? A. Yes. The pivotal support of the work-engaging member in this wrench is and must be the spring bar.

Q. Suppose we eliminate the spring bar from the device entirely and operate the handle and head member with the inner member engaged with a nut. Isn't it true that the outer or head member would rotate about the inner member 87? A. That is right.

Q. In the absence of the spring? A. That is right.

142 Q. And the only function of the spring is to resist that movement? A. The function of the spring—

Q. (Interposing) And measuring the amount of force being exerted? A. The function of the spring is to pivotally mount the head member in such a way that you can use this as a torque wrench.

In the structure you described, in which you have taken out the spring and just leave the work-engaging member in the end of the casing there you can, it is true, turn the casing round and round the work-engaging member but it doesn't do anything.

Q. Except mount the handle on the work-engaging member. Doesn't it mount the handle on the work-engaging member? A. It would be mounted—

Q. (Interposing) Isn't it mounted so in your model that you yourself introduced here? A. No, I don't think so. I think the work-engaging member in here is mounted on the spring. I don't think it is mounted on the casing because the casing performs no function whatever in connection with the operation of the wrench.

Q. Now, coming to the matter of what is a pivotal con-
nection, you have produced certain devices in which a
143 flexible spring is used to connect one part to another,
and you have testified that that connection is a piv-
otal connection; but is it not true that in every case of that sort there is a mere deformation of the connecting member? A. Yes.

Q. And there is no pivoting in the usual sense; is that true? A. No, I don't agree with the latter statement.

Q. I will ask you this: When we look at the Zimmerman patent and look at the two parts 87 and 88, when one moves about the other that is a pivoting, is it not? A. I don't think so. I have got to know something about the function of a thing in order to determine whether it is pivotally supported or not.

You show me a wheel on an axle and you say, is that pivotally supported, and there is one other element in connection with the wheel which may be the support. I want to see the whole structure.

Q. Then you doubt that the member 87 and 88 of Zimmerman is pivotally mounted one on the other? A. I don't think they are intended to be. They perform no function in that respect, and I have been directing my attention to the function of the device as set forth in the claims here in issue.

Q. And yet you say that the flexible connection of
144 one member to the other makes one pivotally con-
nected to the other? A. That is right.

Q. And yet the rotary connection in Zimmerman is not a pivotal joint? A. One goes around the other. If you take those two articles and show them to me alone, separated from the rest of the structure, merely asking the geometric relation of one to the other, I would say that one moves around the other.

Mr. Cochran: That is all.

Redirect Examination

By Mr. Coltman:

Q. Directing your attention to Plaintiff's Exhibit 19, if, as suggested on cross-examination, the Zimmerman spring bar is removed from this device, the Zimmerman device, and the work-engaging member is then put on a bolt or nut, will the turning of the handle rotate the bolt or nut and tighten it? A. No, it won't do anything to the bolt.

Q. You can't turn the bolt or nut, is that it? A. That is correct.

Q. In other words, the device is inoperative and useless? A. Completely so.

The Court: Then why do you cover it by the claim?

Mr. Coltman: The claim includes the spring bar
145 and it is the rocking movement produced by the
spring bar that produces the pivotal support between the two. That is why I say a claim is always read in connection with the operation of the device and not when it is standing—

The Court: I get your point.

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Evidence on Behalf of Defendant.

Mr. Cochran: May it please Your Honor, I have prepared the exhibit which is before Your Honor containing the copies of certain patents and certain parts of the records in the Patent Office. I believe they have all been introduced in various exhibits presented by the plaintiff. Therefore I deem it unnecessary to offer this folder in evidence unless Your Honor would wish to have it as a convenience.

The Court: That will not be necessary.

Mr. Cochran: Then the defendant relies on the
146 evidence of the plaintiff.

The Court: Does counsel wish to be heard?

Mr. Coltman: Yes, Your Honor.

You have stated in numerous instances to present certain points for argument.

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Argument on Behalf of the Plaintiff.

Mr. Coltman: If the Court please, I do not believe there is any question in this case about the attempt of the Patent Office to read a limitation into the reissue claims which is not present in the reissue claims.

Mr. Cochran has said that in order to satisfy the term "pivotal support" recited in the element 2 of reissue claim 3, for instance, it is necessary that there be a pivotal connection of some kind between each end of the spring bar and the adjacent member, such as the work-engaging
147 member on the one hand and the handle on the other hand.

If we read reissue claim 3 we find that such a limitation is not present in this claim. It recites broadly a work-engaging member pivotally supported adjacent one end of the handle member. Where is there any structure that will support the position of the Patent Office before this Court? I ask that and I think that is the question in this case: Where is there any structure mentioned in that claim that sustains the position of the Patent Office?

Broad language has been used in this claim. The plaintiff has not formulated this claim. The plaintiff doesn't come before the Court as the author of this claim. He comes before this Court and says, "Here is a claim that reads upon my structure. I was in the Patent Office when that claim was granted to another patentee. The patent to the other patentee issued the same day as my patent did, and I marketed my device long before the other patentee filed his application."

The Court: The other patentee has a slightly different structure.

Mr. Coltman: That is a point I will show that the authorities say doesn't make any difference. You read the claim as broadly as the language will permit, independently

of the structure shown in the patent from which the claim
is taken. It is impossible and not permitted under
148 the authorities to read limitations into claims to
meet the exigencies of a particular situation.

We are here contending that this claim reads on our structure, and so far as the law is concerned it doesn't make any difference what the other structure is that is shown in the patent from which that claim came, and to support that position I would like to read what the Court said in Shults vs. Dunham, 67 Fed. (2d) 501:

"Counts in interferences should be given as broad a meaning as their terminology will reasonably permit." Citing other authorities.

The Court: I take it, however, that there are differences between the two disclosures and I assume if the position of the Patent Office is correct then your structure does not infringe the Zimmerman patent.

Mr. Coltman: If the position of the Office is correct.

A case by the Court of Appeals of the District of Columbia, which has been followed in many cases, is in re Levy, 55 App. D. C. 137; 2 Fed. (2d) 939. In this case the party, Levy, attempted to copy claims from a patent to Armstrong, and the Patent Office said that Armstrong's disclosure was different, his structure was different; that because the structure was different and the language applied differently to Armstrong than it did to Levy the Office held Levy could not make the claim, and this is what the Court said:

"The Assistant Commissioner ruled that Arm-
149 strong had in mind the employment of very high fre-
quency, and he therefore read that limitation into the
claims. But, over and over again, we have ruled that claims must be given the broadest interpretation which they reasonably will support, and that a party will not be permitted to narrow his claims to suit the exigencies of a particular situation. (Citing numerous authorities.) The party who states his claims before the Patent Office in broad language

is not in a position, when thrown into interference to read limitations into them. The reason is obvious. If he has asked too much, he may reform his claims in an appropriate proceeding. When he takes claims broader than his invention, however, he thereby is enabled unduly to harrass the public."

Another case by the Court of Appeals of the District of Columbia is Miel vs. Young, 29 App. D. C. 481. There an interference involved two parties, and one party was contending that the other party's disclosure did not support the language of the other's, the same as the contention in this case. The Commissioner is contending that our disclosure will not support the language of reissue claims 3 to 8. The Court said:

"This claim should be given the broadest interpretation which it will support and we should not strive to im-
150 port limitations from the specification to meet the
exigencies of the particular situation in which the claim may stand at a given time. Although Miel is a patentee, if the terms of his claim do not in their ordinary and natural meaning define his invention according to his intent he may apply for a reissue." (Also citing authorities.)

And so I say, if the Court please, there is nothing in this claim that says that there must even be included a head member.

Zimmerman calls his handle member 81 and he says his head member is 80.

The Patent Office is trying to read that handle member to come all the way down here to the work-engaging member. That is not the handle member, the portion designated 83. A normal man drafting a claim before the Patent Office would not term that the handle member. That is obvious.

What was Zimmerman trying to do? He was reaching out to include Sturtevant's.

I might say this. This Court should not hesitate in any way to give consideration to the Sturtevant patent, and I

say this because the United States Supreme Court said about this Zimmerman patent involved here, in Precision Instruments Manufacturing Co. vs. Automotive Maintenance Machinery Co., published April 23, 1945, "That the history of the patents and contracts in issue is
151 steeped in perjury."

I would like to have Your Honor read that decision in connection with the Zimmerman patent. There is no reason to attempt to protect Zimmerman in this case.

The Court: The Court is not interested in protecting Zimmerman nor in protecting Sturtevant. The Court is interested in deciding the issues according to the evidence and the law, and the Court is not going to be influenced by any extraneous questions one way or the other.

Mr. Coltman: I merely make that statement because the Examiner said that after all these years the parties should not come back into the Patent Office and try to upset Zimmerman.

The Court: The Court is not impressed with that either.

Mr. Coltman: We maintain, if the Court please, that the statement "pivotally supported adjacent one end of said handle member" refers to the time this structure is in operation, because all we have to do is continue reading claim 3:

"a normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member" (that is only when the device is in operation); and the last element of the claim is:

"and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied
152 to the work."

Let's analyze that claim for a moment. It purports to cover a torque wrench that measures torque. When does that wrench measure torque? When it is in operation, and the medium of measurement is the flexing and that spring bar can not flex and produce this relative rock movement unless there is that pivotally supported relation between the handle and the work-engaging member. The rock movement is not the spring. The rock movement is the rock movement between these two members and that is the thing that is measured. There is no question about that.

Here is the Sturtevant wrench, and I am demonstrating Plaintiff's Exhibit 12. Here is this pointer. When it is working this pointer moves with respect to that gauge. What is that? That is a pivotal movement. The pointer pivotally moves with respect to the gauge, and the thing that carries it in that relation is the work-engaging member. If the gauge and the pointer are pivotally supported, as it must be in the operation of this gauge, then the members carrying the gauge and the pointer must be in pivotal supporting relation with respect to each other.

The Court: May I interrupt with a question?

Mr. Coltman: Yes, sir.

The Court: Maybe I am laboring under a misapprehension, but it was my understanding that plaintiff's 153 contention was that the pivotal support referred to in the claim arises out of the manner in which the work-engaging member engages the work.

Mr. Coltman: No, sir.

The Court: Is my understanding of your contention correct?

Mr. Coltman: Our contention, Your Honor—

The Court: Is my understanding correct or not?

Mr. Coltman: I would just modify it slightly, Your Honor.

The Court: It was my understanding that you claimed—if I am wrong I want to be corrected—that the pivotal support arises when the work-engaging member engaged the work and the functioning from that moment on is pivotal as between the work and the work-engaging member.

That is what I understood you to say in your opening statement.

Mr. Coltman: I am sorry. I didn't mean to give the Court that impression.

The Court: What is your contention? I am glad to clarify my thinking.

Mr. Coltman: The contention is that when the wrench is in operation, and the work has been brought to a tightened position, enough to overcome the resistance of the
spring—up to that time the wrench moves as a rigid
154 unit, both in Zimmerman and in Sturtevant—

There is no movement at all between this member 87 and 88 in Zimmerman. At that time the parts move as a unit, and then when the work is tightened enough to overcome the resistance of this spring the handle continues to move, and that continued movement here produces a pivotal movement through the spring bar.

In other words, this then becomes pivotally supported with respect to the work-engaging member so that pivotal movement can be reflected in the movement of the pointer with respect to the gauge to determine or indicate torque.

The Court: Then my understanding is correct, that the pivotal function is between the work-engaging member and the work.

Mr. Coltman: No, Your Honor. The work-engaging member remains fixed on the work and does not move at all on the work.

The Court: What moves then?

Mr. Coltman: The handle moves, Your Honor. The work-engaging member does not move on the work.

The Court: Oh, yes; I should have said the handle.
of apparatus, pivots on what other piece of apparatus?
Mr. Coltman: The handle member pivots relatively or
Well, then, will you tell me what member, just what piece
with respect to the work-engaging member.

155 The Court: I see your point. I thought your point
was the work-engaging member pivots with respect to the work.

Mr. Coltman: No, Your Honor.

The Court: Your point now is that the handle pivots with respect to the work-engaging member.

Mr. Coltman: That is correct.

The Court: Even though there is no pivotal connection between the two, even though there is a solid connection between the two.

Mr. Coltman: There is no solid connection.

The Court: The two together form a unitary structure?

Mr. Coltman: It is a unitary structure, yes, because they are all connected together as in any pivotal mounting.

The Court: They are one and the same?

Mr. Coltman: It is exactly the same situation as in Plaintiff's Exhibit 14, this clock. This pendulum pivots. No one would ever say that the pendulum doesn't pivot, and the same type of mounting is provided here for the pendulum as it is for the spring.

The Court: I get your point.

Mr. Coltman: This is the equivalent of the handle, this pendulum, and the member to which it is mounted is equivalent to the work-engaging member. The intermediate portion—that spring mounting—is the pivotal support for the pendulum arm.

156 The Court: In other words, to put it simply, is it your contention that the flexing motion of the handle constitutes the pivotal function?

Mr. Coltman: Yes, sir, not of the handle but of the spring bar between the work-engaging member and the handle. That is exactly like Zimmerman shows.

The Court: Except that Zimmerman has a true pivotal function in the work-engaging member.

Mr. Coltman: No, sir.

The Court: I do not know whether it is necessary to have that additional element that Zimmerman inserts in order to operate the device efficiently, but he does have this additional element whereby the spring bar mechanically pivots on the work-engaging member.

Mr. Cochran: The outer portion, Your Honor, pivots.

If your Honor will look at Figure 9 of Zimmerman, the part 88 pivots on the part 87. That is on sheet 2 of the drawing.

The Court: You say 87 pivots on 88.

Mr. Cochran: Pivots within 88.

The Court: Those are both parts really of the work-engaging member; is that it?

Mr. Cochran: No. 87 is the work-engaging member.

The Court: What is 88?

157 Mr. Cochran: 88 is what Zimmerman properly refers to as the head which swivels around 87.

The Court: But how is the corresponding part in the Sturtevant patent referred to?

Mr. Cochran: There is no corresponding part.

The Court: 88 is part of the spring bar, isn't it?

Mr. Cochran: No; it is a housing member which does surround the spring bar.

The Court: Without referring to numbers, will you tell me what other piece of apparatus in the Zimmerman apparatus—

Mr. Cochran: Shall I answer that?

The Court: Yes.

Mr. Cochran: Do you mind?

Mr. Coltman: No.

Mr. Cochran: The work-engaging member is pivotally mounted in the surrounding head member.

The Court: There is no surrounding member in the Sturtevant patent?

Mr. Cochran: That is true.

The Court: Very well; that clarifies the Court's thinking.

Mr. Coltman: If the Court please, the spring bar is rigidly connected to the work-engaging member in Zimmerman the same as in Sturtevant.

The Court: I did not hear you.

158 Mr. Coltman: In Zimmerman the spring bar is rigidly connected to the work-engaging member the same as in Sturtevant, and if the front portion of the casing of Zimmerman is removed Zimmerman operates exactly in the same manner.

The Court: Oh, yes; if you change Zimmerman's device in the same way, it operates.

Mr. Coltman: And the force that is applied to the handle is transmitted through the spring bar and not through the casing. The casing doesn't transmit any force at all that produces the rock movement that registers torque at the gauge.

The Court: I think I have consumed about five or ten minutes of your time and I will extend your time, Mr. Coltman.

Mr. Coltman: Thank you.

What have we in the case to controvert the evidence produced by the plaintiff? Nothing except the contention or assertion of Mr. Cochran that the language doesn't read on our claim. No evidence has been offered in this case by the Patent Office showing that the evidence produced by the plaintiff is not correct.

We have here, however, the second Sturtevant patent. We have the case of Weber vs. Freeman by the Supreme Court of the United States, 256 U. S. 668, holding that it is
proper to refer to a subsequent patent of the same
159 patentee to determine the meaning of language in
the first patent, or the disclosure which the first patent contains.

The claims in suit in that case described the connection between two parts of an electric socket as telescopically applied and telescopically received.

In interpreting this language the Court, speaking through Mr. Justice Clarke, said:

> "But that no rotary movement was applied in the use of 'telescopically received' and 'telescopically applied' in the patent in suit is further and unmistakably shown by the frequent use of the same or equivalent expressions in the specifications and claims of patentee's later patent * * *, in which claims 1, 3, 13 and 14 relate almost wholly to an improvement which renders rotation impossible."

"For the reasons thus elaborated, we conclude that the socket of respondent does not infringe the patent in suit because the file wrapper and the subsequent patents show that the disclosure is, and was intended to be limited to a construction operative without such rotative movement."

I think that is an authority for this Court to consider what has taken place in the second patent.

Mr. Cochran said that the examiner made a mistake, and
it is only mentioned in one or two places in the second
160 patent that the work-engaging member is pivotally
supported with respect to the handle member.

I can't agree with Mr. Cochran because the entire specification talks about this rotary or pivotal movement between the head member and the work-engaging member.

May I just take the Court's attention for a moment to page 1, column 1, beginning with the lines 27 et seq:

"The invention may be specifically applied to a torque measuring wrench—"

The Court: I have read this.

Mr. Coltman: You have read it?

The Court: Yes.

Mr. Coltman: Numerous times throughout this specification that language was put before the examiner and even in claims 8 and 26 the very language that is objected to here describes the very same structure in this second patent.

True, the patent, in so far as the invention covered, is directed to a specific improvement, namely, the overload release, but I am talking about the same wrench and that the language that is in controversy here has been permitted in the second case. There is no dispute about it and I might say for the advice of this Court that the same examiner, the primary examiner of the division handled both the reissue application personally and he handled this patent personally and he was not confused. Nothing was done to slip something over on him.

161 Mr. Cochran: That is not in the evidence, Your Honor.

The Court: There is no such contention.

Mr. Coltman: I wanted to make it clear.

The Court: There is no contention that anybody slipped anything over.

Mr. Coltman: I want it understood it was there often before the examiner. He had every opportunity to reject the language in this case, but when there was no interference involved, or the question of the failure of his division to declare an interference at the proper time is not involved, the language is appropriate; but when it comes to declaring an interference it isn't appropriate.

I don't know what Mr. Cochran's contention is with respect to inadvertence or with respect to the same invention, and I only have this much to say in that connection, and I hope I might reply if something new is brought in.

The Court: I will give you five minutes to reply.

Mr. Coltman: Thank you. There has been [illegible] inadvertence. There has been no cancellation of claims to the business end of the wrench.

The Court: The plaintiff testified as to the mistake and his testimony has not been controverted.

Mr. Coltman: That is correct. And the claims of the original patent are not limited to this handle. They read upon all four structures.

The Court: The claims in the original patent are
162 extremely narrow.

Mr. Coltman: If I may, I wish to have an opportunity to reply on this question.

The Court: Yes.

Argument on Behalf of the Defendant

Mr. Cochran: May it please Your Honor, plaintiff's position is that these two members, by reason of their being connected by a flexible strip of metal, are pivotally connected to each other.

The Court: Tell me that again.

Mr. Cochran: These two members, the handle member and the work-engaging member are pivotally connected together or pivotally mounted one on the other, or pivotally supported, simply by reason of the fact that they are connected by a flexible metal member.

The Court: That is plaintiff's position.

Mr. Cochran: Yes. That, I submit, is a rather unusual use of the term "pivotal" to say the least.

As the Examiner expressed it in one case it is as if you are saying the tree is pivoted to the ground because it can sway in the wind.

The Court: Perhaps it might help if I stated what disturbs the Court is the second Sturtevant patent.

The structure is the same, and yet the examiner per-
mitted the use of the phrase "pivotally supported"
163 and permitted it to be used in accordance with the
meaning attached to it right there.

Mr. Cochran: That is true, Your Honor, and it disturbs me, I may be frank to admit. I can only speculate that the Examiner must have had his attention drawn to other features that were in that application and let this error slip by. I do think it was an error, and I don't think that error would be corrected by allowing plaintiff to have the claims here, if it be an error.

The Court: What basis is there for the contention that this was an error on the part of the Examiner? Could it not be just as well argued that the Examiner changed his mind between the time that he passed on the first application and the time he passed on the second?

Mr. Cochran: It could be reasoned that way, Your Honor, but I think the examination of the actual things before Your Honor should be determinative here rather than to accept a supposition that the examiner had changed his mind.

I don't think it is in the record of the second patent which showed this matter came up for discussion and that the examiner did change his mind on the subject.

The Court: I must say the Court would decide this case in favor of the defendant were it not for the second Stur-

tevant patent, because it certainly seems to the Court that it is a distortion of the phrase "pivotally supported"
164 to use that phrase in the sense attached to it by the plaintiff, but in view of the fact that the Examiner permitted that meaning to be attached to that phrase in the second Sturtevant patent the Court is very much disturbed by that circumstance.

Mr. Cochran: It disturbs me too, Your Honor, I must say.

The Court: I appreciate your candor, and let me say that this Court always meets with candor from the hands of counsel for the Commissioner of Patents. Both you and Mr. Reynolds are always candid and helpful.

Mr. Cochran: Thank you, Your Honor.

The fact that the examiner did take an inconsistent action here in permitting this second patent to go out with this terminology, that was inconsistent, but the Court of Appeals as well as the Court of Custom and Patent Appeals has held in many cases where the examiner acts inconsistently and in fact allows such a claim, the Court says the inconsistency on the part of the Patent Office is not what the Court is to decide the case on. It is rather to decide it on the merits of the claim itself.

The Court: What do you say about the Weber case?

Mr. Cochran: I am not familiar with that case beyond what counsel has said about it.

The Court: As I understand counsel cites that for the proposition that if there are two patents issued to
165 the same inventor, a meaning attached to a phrase used in the claims of one may not be denied by the Patent Office in a subsequent application.

Mr. Coltman: That is right.

The Court: Is that what this case stands for?

Mr. Cochran: Or was it that the inventor would be bound—

The Court: I will read the case during the recess.

Mr. Coltman: It supports our position.

The Court: May I interrupt? Would a question interfere with your train of thought?

Mr. Cochran: Not at all.

The Court: What did you cite that for?

Mr. Coltman: May Mr. Rathburn answer the question?

The Court: Yes.

Mr. Rathburn: We cite it on the exact point you are talking about, that it is proper to refer to a later patent to determine the meaning of language, language used in the earlier patent of the same inventor.

The Court: In what kind of a case?

Mr. Rathburn: The Weber case was an infringement case and the patent owner was asserting a meaning to certain language and there was nothing in that patent itself that would have proposed this interpretation, and they went to a later patent of his where he had used the same
166 language and from the use of the language in a later
patent concluded that he was wrong in attempting to read the language the way he wanted to.

The Court: I will read the case.

Mr. Cochran: In that case they restrained the patentee instead of letting him assert his meaning of the term.

The Court: The principle is the same except perhaps for the public interest.

You proceed in your own way. I didn't mean to interfere with your argument.

Mr. Cochran: Let's take claim 3, for instance, which is the first claim, and it does call for "A work-engaging member pivotally supported adjacent one end of said handle member."

That reads square on Zimmerman because he has that outer member which swivels about the inner working member, and he says "adjacent one end of said handle member."

Then he says, "A normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member." That bar is the pivotal connection.

First the claim recites a pivotal connection and it recites as a separate element a bar. That is a double inclusion as applied to plaintiff's structure but it is not so applied to Zimmerman's structure.

The Court: State that point again.

167 Mr. Cochran: First, the claim calls for a work-engaging member pivotally supported adjacent one end of the handle member.

Now we have the pivotally supported connection right there already recited.

Then the claim goes on and recites as a separate element a spring bar which resists relative rock movement.

Applied to plaintiff's device you first are reciting the pivotal connection and then reciting again the very thing which he says makes the pivotal connection, namely, the bar. That is a double inclusion and that makes it very difficult to apply this claim.

The Court: That wasn't a ground for objection.

Mr. Cochran: Oh, yes; that is put forth in the examiner's statement here and in the decision of the Board of Appeals.

The Court: Is it?

Mr. Cochran: Oh, yes. The Examiner refers to that specifically, Your Honor, if I may refer to it.

On page 12 of the Examiner's statement, Your Honor, he says this:

"It will now be attempted to apply claim 3 to applicant's disclosure, employing the term 'handle member' in turn to designate (1) either grip portion 22 alone (as the prototype of part 8 of Zimmerman) or (2) as the combina-
168 tion of parts 12 and 22. In (1) that is, starting with grip 22 as the 'handle,' and construing the 'work-engaging member' 10 as 'pivotally supported adjacent the handle' by spring 12, then for the third item of the claim—the spring bar—we must back-track and read the two elements of the claim onto a single element of applicant's structure."

In other words the spring bar is recited as a separate element and is also recited as a pivotal support.

In Zimmerman that is quite exactly the case with his device. We have the pivotal support and then we have the spring bar in addition which is not a part of the pivotal support. That is another feature in which it is very difficult to read the claim.

The Court: Of course I didn't understand this point was in the case. It wasn't mentioned.

Mr. Cochran: I don't mean to take you by surprise on it.

The Court: It is in the exhibits, of course, and it is in the evidence and you have a right to argue on the evidence.

Mr. Coltman: The Board practically passed over that.

The Court: You will have a chance to reply.

Mr. Cochran: There is also the examiner's statement; some quotations from Standard Dictionary on what pivotal support—

The Court: If I were deciding this now, without
169 the second Sturtevant patent in the case, I would
hold there is no pivotal support.

I am perturbed by the second Sturtevant patent.

Mr. Cochran: I don't know what I can say about that except what I have said. I don't think that should be conclusive; that the questions of inconsistency on the part of the Patent Office should not be determinative when the facts are, as I think, clear here, Your Honor.

The Court: I know, but a Government agency can't blow hot and cold alternatively.

Mr. Cochran: I will say this on that point, and counsel has practically admitted that, that the point of whether that language in the second application is applicable to the construction of the second patent wasn't the crucial point. That patent was on this handle which snaps on. That was the crucial point.

The Court: Don't misunderstand my remark. I didn't intend to be critical of counsel or of the examiner either.

Mr. Cochran: There is another ground, of course—two other grounds—on which the Patent Office refused this patent.

The second ground is that the plaintiff is not now trying to get the patent on the very invention that he was endeavoring to get a patent on in taking out the two claims he did.

170 The Board of Appeals said on that point (Part F at page 2 of that part):

"With respect to the rejection of claims 3 to 11 as being for a different invention from the claims of the patent, it is our conclusion that the appealed claims were properly held to be for a different invention from the claims of the patent. As pointed out in our decision (that is their earlier decision in this case) the patent claims are specific to the construction of the handle grip whereas the claims on appeal are broadly drawn to this feature of the invention, but specific to the manner in which the end of the spring bar is connected to the work-engaging member (Claims 3, 4, and 7 to 11) and the pivotal connection of the work-engaging member to the end of the handle. Nothing is said in the specification of the patent to the effect that the spring bar extends across the axis of rotation of the work-engaging member or that the opening in the work-engaging member, in which the spring bar is securely mounted, extends across said axis, as defined in appeals claims 3, 4 and 7 to 11."

Those are details which are disclosed, Your Honor.

The Court: You do not contend broadly that an applicant for a reissue patent may not broaden his claims providing in his broadened claims, in their broadened
171 form, they read on the disclosure, do you?

Mr. Cochran: No, that is right, if it is for the same invention, Your Honor.

The Court: The same invention as they disclosed?

Mr. Cochran: Not just disclosed but they sought to be protected. You might have two things disclosed in a patent application and you limited your first claim to this one device; you can't move over to take up more than one then because that was not the invention you sought to protect.

The Court: Isn't what the applicant has done here really to broaden the claim.

He started out with such a narrow set of claims that he got very little protection because the claim easily could be infringed by leaving out one of the numerous elements described, so he comes along with an application for a reissue patent containing broader claims.

Do you contend a reissue may not be granted for that purpose?

Mr. Cochran: It may be granted so long as it is for the thing that he sought to protect.

I would like to read a few lines from the decision of the Supreme Court in this U. S. Industrial-Chemicals case which was decided in 1942 in March.

The Court: What is the citation?

Mr. Cochran: I do not have it here.

172 Mr. Coltman: We have it. It is 315 U. S. 668.

Mr. Cochran: There the Court said:

> "The question is whether, in the light of the disclosures contained in the two patents, they are for the same invention."

I may say it was in process of making something and there was a step of the addition of water to the material during the process of making it and the reissue patent left out that step of adding the water to the chemical and said there was enough water in the air, or whatever you use now.

The Court said:

> "This Court has said that they are the same invention if the reissue fully describes and claims the very invention intended to be secured by the original patent; if the reissue describes and claims only those things which were embraced in the invention intended to have been secured by

the original patent; if the broader claims in the reissue are not merely suggested or indicated in the original specification but constitute parts or portions of the invention which were intended or sought to be covered or secured by the original patent. The required intention does not appear if the additional matter covered by the claims of the reissue is not disclosed in the original patent. If there be failure of disclosure in the original patent of matter
173 claimed in the reissue, it will not aid the patentee
that the new matter covered by the reissue was within his knowledge when he applied for his original patent. And it is not enough that an invention might have been claimed in the original patent because it was suggested or indicated in the specification. It must appear from the face of the instrument that what is covered by the reissue was intended to have been covered and secured by the original.''

In this case, of course, in my view of it, there was no possible intent of the applicant in his original patent to cover this structure, first, because he didn't have the structure, the pivotal support, and second because he deliberately limited his claims to this one little feature, after a prolonged prosecution of the first application in the Patent Office.

The Court: Do you mean by that he had broader claims in his application and withdrew them?

Mr. Cochran: Oh, yes.

The Court: Were they the same claims as those in the reissue?

Mr. Cochran: No, not quite, but they were not so far from it.

Of course it wouldn't have been the same claim because it had this inaccuracy in it, but aside from this inaccuracy about the pivotal connection they were directed to-
174 ward the same end of the wrench and its construction, and not to the mere little two-piece handle.

Counsel well knew in the prosecution of that earlier case that these two claims were limited to the two-piece handle and they deliberately took out the patent. Perhaps the applicant didn't know what counsel was doing, but as the decisions I cited the other day said that the deliberate acts of the attorney cannot constitute inadvertence, accident or mistake and the applicant is bound by it. That was the decision of the Grand Rapids Showcase Company which I gave.

The Court of Appeals here has said in re Schneider, 49 App. D. C. 204—

The Court: What do you contend would be an accident, mistake or inadvertence?

Mr. Cochran: Well, such as that the attorney didn't understand the invention, or that the thing was so complex.

The Court: Certainly the minds of attorney and client in this case did not meet.

Mr. Cochran: Oh, yes, they met. This last decision of Schneider says:

"Nor will it do for applicant to say that the fault was that of his solicitor in drawing the original claims. They were his agents and he is bound by their acts."

The Court: If those words are taken broadly I do not see how there could ever be an accident, mistake or
175 inadvertence.

Mr. Cochran: Except the attorney thought the patent was one thing and the applicant didn't understand what it was. It was a case in which both applicant and attorney were German subjects and not familiar with the English language and they thought they were getting something more than they were, something of that nature. It should be a mistake, accident or inadvertence; not just a failure to claim.

At the time counsel put in these two claims which went out in the original patent, counsel themselves called attention to the limitation therein to this little feature that was in the claim, so there was no inadvertence. You understand what those claims were.

Plaintiff has not pointed out any particular inadvertence, accident or mistake which could satisfy the law.

He relied on a strained and unwarranted construction of the language "pivotal support" to let him make these claims.

The Union Switch & Signal case, which I gave Your Honor the other day, is pertinent in this connection.

The specification of plaintiff's original patent did not describe the pivotal support in the invention. Neither does his present reissue.

The Court: There is no question about that.

Mr. Cochran: I think that the Patent Office refusal should be sustained on each of the three grounds which have been urged against it. 176

The Court: What is the citation of the Weber case?

Mr. Cochran: Weber vs. Freeman, 256 U. S. 668.

* * * * * * * * * *

Mr. Cochran: In all of the cases of this kind where applicant is copying claims from a patent granted to another, the uniform ruling of the courts has been that all doubt as to his right to make the claim be resolved against him.

177 In Lindley vs. Shepherd, 58 App. D. C. 31, it is said:

"It is familiar law that claims will be interpreted with reference to the application in which they originate and that all doubt as to the rights of one who copies claims from a patent granted another should be resolved against the applicant."

The same ruling was made in McFarren vs. Morgan, 58 App. D. C. 77, and in Hauss vs. Merrill, 48 App. D. C. 433.

With reference to the Weber case which was mentioned—

The Court: I do not think the Weber case is in point. I read that.

Mr. Cochran: I will say this. It is my view that any one of the three grounds which has been used by the Patent Office in support of its rejection of these claims is sufficient on which Your Honor could dismiss the claim and I feel each of the three grounds is a proper one.

Thank you.

The Court: Before you reply, I think I ought to help you by stating that I do not believe the Weber case is in point.

In the Weber case there were two patents to the same patentee, to be sure, but during the prosecution of the earlier application the patentee restricted the meaning of one of the terms used in the claims and the Court held that
the applicant in the second application could not
178 broaden the term that he had himself restricted in
his prior application.

That is a far cry from holding that if the Patent Office permits the applicant in one application to attach a broad meaning to a particular phrase of the claim that it is bound to permit the same course in a subsequent application on the part of the same applicant.

To my mind the Weber case is out of point.

Argument in Rebuttal on Behalf of the Plaintiff

Mr. Coltman: If the Court please, as we view the Weber case the facts may not be the same but the principle announced there, I believe, is applicable.

In Weber vs. Freeman the plaintiff was contending that the terms "rotary movement" or the terms "telescopically received" and "telescopically applied" implied rotary movement.

To determine what the patentee meant in one patent the Court referred to a subsequent patent and stated that not only was rotary movement not implied by the terms "telescopically received" which was also used in the second patent, but it was definitely stated that there was no rotary movement in view of certain claims that appeared in the

second patent, and it has been cited in this case to show that this Court may, if it wishes—it is within its
179 power if it wishes to do so, refer to the subsequent second patent of Sturtevant.

The Court: I am going to refer to it, but I perhaps misconstrued the purpose for which that case was cited.

I though it was cited for the proposition that once a meaning having been attached to the term in an earlier patent all parties are bound by that meaning in the subsequent patent.

You have no case, have you, which holds that the Patent Office is estopped or is precluded by permitting an applicant to attach a particular meaning to a term in a claim in one patent from declining to permit it to do so in a later patent?

Mr. Coltman: I wish to be frank with the Court and say we have not.

The Court: I do not believe there is any.

Mr. Coltman: I do not believe so either.

I wish to address the Court on just two points.

If the Court holds in this case that this language "pivotally supported" with respect to the handle member is not appropriate, this Court's ruling will cast a cloud on the second patent—definitely cast a cloud—and I think the Court ought to take that into consideration.

There are numerous cases that hold that where the Patent Office is inconsistent the Court should keep that in mind and bear it in mind and grant the plaintiff relief,
180 and I think the Patent Office has been inconsistent here, very inconsistent.

The question of delay, or the question of inadvertence that Mr. Cochran has urged—

The Court: I am not going to rule against you on that point.

Mr. Coltman: I want to point out one thing. Whenever Zimmerman claimed the alleged pivot at 87 and 88 in any of his claims he always brought it in definitely by reciting a housing, and I refer Your Honor to Claim 1 of the Zimmerman patent.

There he recites, "a head member having a chamber therein, a working-engaging member rockably mounted in said chamber and having an exposed part adapted for engagement with the work."

Wherever he claims that alleged relation he always says that the work-engaging member is rockably mounted in the housing.

The Court: Which of the Zimmerman claims is copied?

Mr. Coltman: Reissue Claim 31, Claim 33.

The Court: I think we ought to direct our attention to that.

Mr. Coltman: Merely to point out that whenever Zimmerman specifically claimed this alleged pivot at 87 and 88 he claimed it as being mounted in the housing or
181 in the head.

The Court: There is no such element in Claim 33, is there?

Mr. Coltman: No, but it is pertinent to examine the entire Zimmerman patent for that purpose to find out what the meaning of the broad language is in the claims that have been copied.

All claims must patentably differentiate from each other in the same patent. That is an established principle. You cannot have two claims of the same patentable scope.

When the patentee claims the specific element and then omits it and broadly claims the relation, under the law it is presumed that he didn't intend to limit the broad claim to the exact structure covered by the more limited claim. He intends a broader interpretation for that claim, and the point I make is this:

Where Zimmerman in his other claims brings in this alleged pivotal relation specifically by saying it is mounted in or on, then in a broader claim he cannot ask the Court to give a construction for that claim of the same scope as the more limited claim, and there are many authorities on that point.

The Court: But we are not interested in what Zimmerman may claim.

Mr. Coltman: We are, Your Honor.

182 The Court: We are interested in what Sturtevant may claim.

Mr. Coltman: No; if I may say so, we are interested, and the Court is interested, in what Zimmerman did claim and the Court is interested when he construes the language of this thing to find out what Zimmerman claimed elsewhere, and the Court cannot give the same construction to Claim 33, a broader construction, than it can for a more limited claim.

In other words, this Court cannot read into that claim an element that is specifically claimed elsewhere and distinguish it from that claim only in that specific illustration.

The Court: The Court would like to ask counsel this question, referring to Claim 33 of the Zimmerman patent, the second element therein is, "a work-engaging member pivotally supported," and so forth. What is counsel's contention as to what portion of the Zimmerman disclosure supports this element of the claim?

Mr. Coltman: The pivotal relation that exists between the work-engaging member and the handle member—the pivotal relation.

The Court: It is a mechanically pivotal relation?

Mr. Coltman: Yes, sir.

The Court: And there is no such mechanically pivotal relation in the Sturtevant.

183 Mr. Coltman: Yes, there is, if the Court please. That is just the point.

The Court: Your contention has been right along that it is a purely functional relation in the Sturtevant patent.

Mr. Coltman: It is in both.

The Court: No. In the Zimmerman disclosure there is a mechanical pivot.

Mr. Coltman: But that pivot does not have anything to do with that claim. That claim doesn't recite that pivot.

The Court: You think that counsel for the Commissioner of Patents does not agree with you?

Mr. Coltman: That is our controversy. We wouldn't be here if he agreed with me, but the Court cannot point out, and neither can Mr. Cochran, this pivot which Mr. Cochran says is in that claim.

What if Zimmerman should have said "a work-engaging member movable with respect to the handle"? Does that bring in structure?

Mr. Cochran knows as well as I do in drafting claims that that doesn't bring in an actual physical element. That brings in a relation, a structural relationship. No element, no structural element need be included under those conditions.

The Court: But in the Zimmerman disclosure that is a structural element.

Mr. Coltman: There is in his drawing but there
184 is not in the claim and we are not concerned then.

The Court: I do not so construe the claim.

Mr. Coltman: I do not believe that the Court believes that the Patent Office should appear before this Court and contend that this language does not cover the wrench of the first patent.

Here is the examiner, the same examiner that passed on both cases—the file wrapper shows it; no question about it.

After this argument arises, a heated argument between the Patent Office and this plaintiff, and while the matter is pending before this Court, and the examiner knew that we were interested, Mr. Sturtevant appeared as amicus curiae in Hoover vs. Coe before the Supreme Court, so interested as he was. The decision will show that.

He knew that this plaintiff contended one thing and the record will show, the file wrapper of this reissue application will show official actions were 18, 19, 20, and 22 pages long. The average action is about 20 pages, and the Office raises everything that can be raised; even said the examiner met Mr. Sturtevant and found him to be an astute man—matters not referred to commonly in any action by the Patent Office, and with that before this very man this application comes to him.

The Patent Office knew this case was pending, ready to go to trial here. The Patent Office knew this matter
185 had not been disposed of, and then in the face of that
grants this language to this applicant so that it now puts this plaintiff in a position where Zimmerman can sue him and show to the Court that the Patent Office has granted that very descriptive language in another patent that covered the same structure and that will be persuasive in an action for infringement.

It will put the plaintiff in this case in a position where Zimmerman may now, after bringing this action, bring suit against the plaintiff and urge before the Court in the infringement action that this language "pivotal support adjacent one end of the handle member" reads upon the Sturtevant torque wrench because the Patent Office has said so in the second patent.

Do I make myself clear?

The Court: Yes, you do, but I am a little perplexed by what the pertinency of that argument is.

Mr. Coltman: I think, Your Honor, this is a court of equity and we are here—

The Court: This is a statutory action.

Mr. Coltman: Yes, sir, but still this is a court of equity.

The Court: Oh, yes.

Mr. Coltman: This is an equity proceeding and
186 I think this Court should not render any decision
that will permit Zimmerman to turn around and sue Sturtevant for infringement by reason of this second patent.

Why should this Court condone the inconsistency that the Patent Office has permitted in this case?

The Court: Well, Sturtevant does not change in his position in reliance on the action of the Patent Office in respect to the first patent. What I mean by that is this:

Suppose the Patent Office had not permitted Sturtevant to have made the claims that he did in his second patent, I suppose he would still be prosecuting this application. In other words, he hasn't changed his position in reliance on that ruling of the Patent Office.

Mr. Coltman: But the Patent Office has changed plaintiff's position with respect to this Zimmerman patent.

The Court: What I mean is this: He hasn't changed his position to his detriment in reliance on the earlier ruling of the Patent Office. He has not been hurt by that ruling.

Mr. Coltman: He will be hurt.

The Court: He has not been hurt by the earlier ruling.

Mr. Coltman: I think he has been injured, Your Honor.

The Court: How?

187 Mr. Coltman: He has been deprived of making these claims to determine whether he is the first inventor of the subject matter.

The Court: The ruling on the second patent has nothing to do with this point. The point I am trying to make is this: that there are no elements here of an equitable estoppel. I do not say an estoppel runs against the Government, but if it did there is no evidence here of an equitable estoppel.

Mr. Coltman: No, but I say this: I do not believe the Court should lightly pass over this inconsistent position that the Patent Office has placed itself in.

The Court: You have not been hurt by it.

Mr. Coltman: Beg pardon?

The Court: Your client has not been hurt by it.

Mr. Coltman: I do not think Your Honor understands me with respect to this question of infringement in view of that remark. He has been seriously hurt by it.

The Court: He has been hurt by the second ruling but not by the fact that Patent Office has changed its position.

Mr. Coltman: Yes, he has. The Patent Office now rules that this language reads upon this wrench.

The Court: Suppose the Patent Office had ruled that right along, he would still be in the same position.

Mr. Coltman: If the Patent Office had not ruled that—

188 The Court: Suppose the Patent Office had ruled the same way right along without changing its posi-

tion, the plaintiff would not be in any different position than what he is now.

Mr. Coltman: Yes, he would be.

The Court: Do you contend there are elements of an equitable estoppel here?

Mr. Coltman: It isn't a question of equitable estoppel, Your Honor. It is this question, if I can make myself clear—

The Court: You have made yourself very clear. Of course, the Court may not agree with you, but I might say the Court wants to compliment you on your very eloquent, lucid and powerful argument.

Mr. Coltman: Thank you. But the issuance of the second patent permits Zimmerman to bring suit against the plaintiff.

The Court: Suppose the second patent had never been issued, Zimmerman would still be in the same position.

Mr. Coltman: That is true, but the issuance of the second patent changes the situation.

The Court: It has not changed it.

Mr. Coltman: It does change it.

The Court: How?

Mr. Coltman: The issuance of the second patent puts Zimmerman in a position to bring suit against the plaintiff in this case and urge that that language reads on the 189 Sturtevant wrench because the Patent Office in the second case, in the second patent, has ruled it has, and Sturtevant under oath in filing this application—

The Court: The Court's view is this:

Suppose the second patent had never been issued, Zimmerman would be in the same position as he is today, the second patent having been issued. He could sue, if he chose to sue the plaintiff.

In other words, the issuance of the second patent does not change the position of Zimmerman.

Mr. Coltman: I think it does.

The Court: Beg pardon?

Mr. Coltman: I believe it does. That is my position.

The Court: How has it?

Mr. Coltman: Because it permits Zimmerman to call the Court's attention to the fact that Sturtevant had made admissions that this language does read on this structure.

In any suit for infringement by Zimmerman against Sturtevant naturally Sturtevant will raise the question that the language does not read upon his structure, but Zimmerman can say to the Court "Here are admissions made by Sturtevant under oath that this language does read on this structure," because a second patent issued to him, and in his second patent he says that it does.

The Court: Is this your point, then: If the Patent
190 Office had rejected the application for the second
patent naturally that application would not have become available to the public and Zimmerman would not have been in a position to know that Sturtevant claimed that these claims read upon his structure?

Mr. Coltman: Yes, sir.

The Court: Is that your thought?

Mr. Coltman: Yes.

The Court: Is it your contention then, is it your thought, that if the second application had been rejected that your client—

Mr. Coltman: The second patent was filed after the reissue was applied for.

The Court: Then you have not changed your position by reason of any ruling of the Patent Office with respect to the second patent.

Mr. Coltman: I just don't follow Your Honor on that reasoning.

The Court: I venture this suggestion: It seemed to me that it is beside the point that by reason of the juxtaposition of these two rulings of the Patent Office, as you say, Zimmerman would be in a position to sue Sturtevant for infringement, but it does not seem to the Court that that result is a consequence of the granting of the second patent.

* * * * * * * * * *

May 19, 1942. **P. A. STURTEVANT** **2,283,707**

TORQUE WRENCH

Filed March 28, 1938

Fig. 1

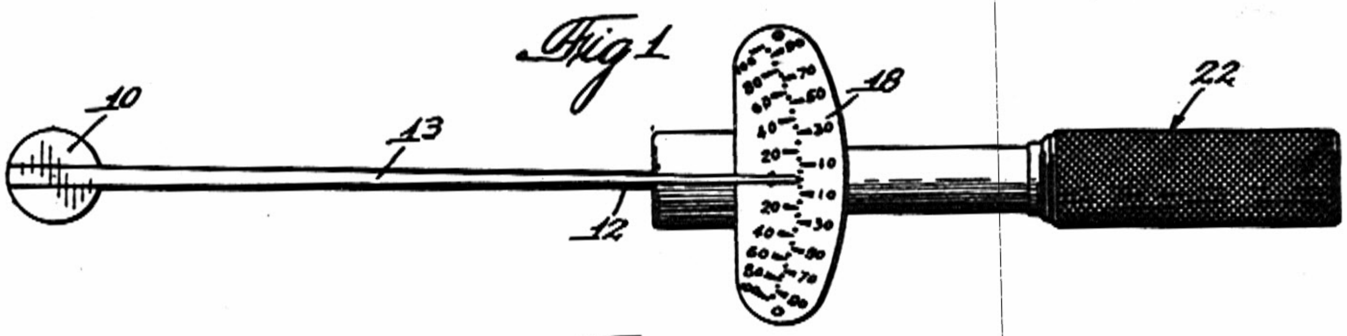


Fig. 2

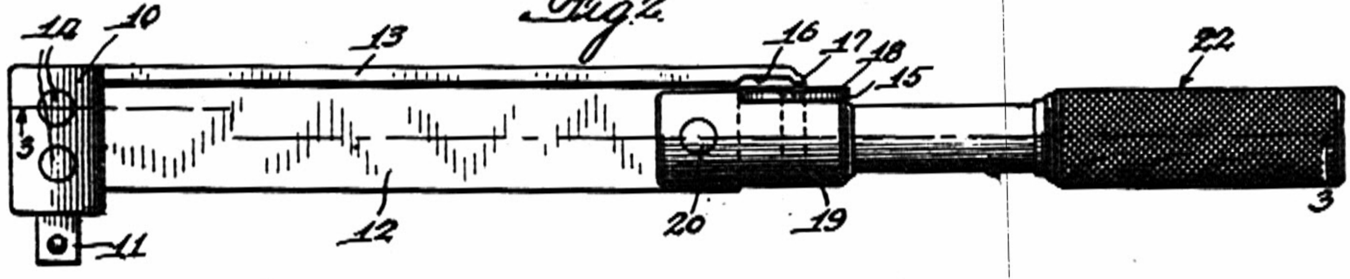


Fig. 3

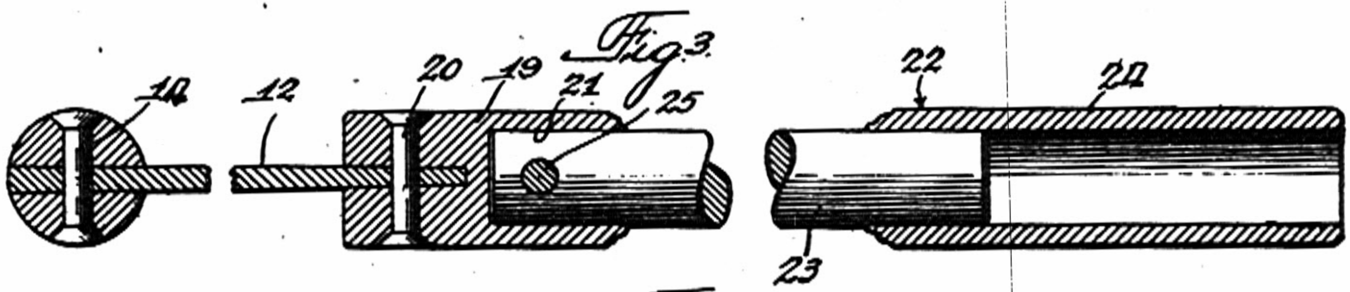


Fig. 4

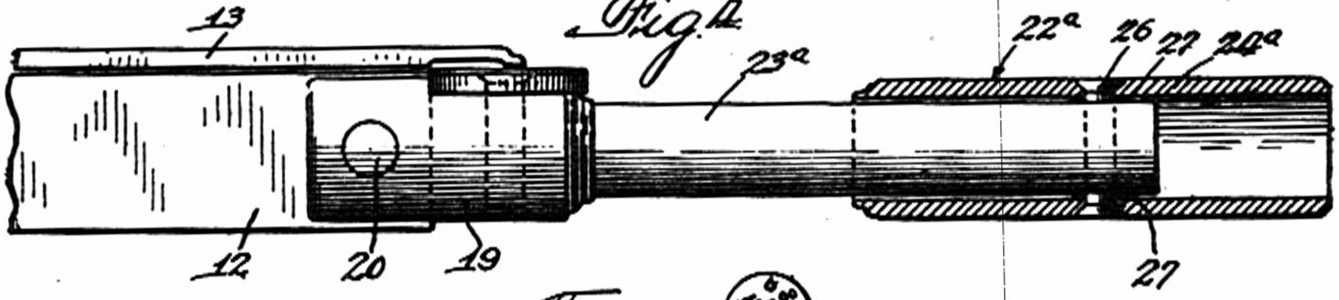


Fig. 5

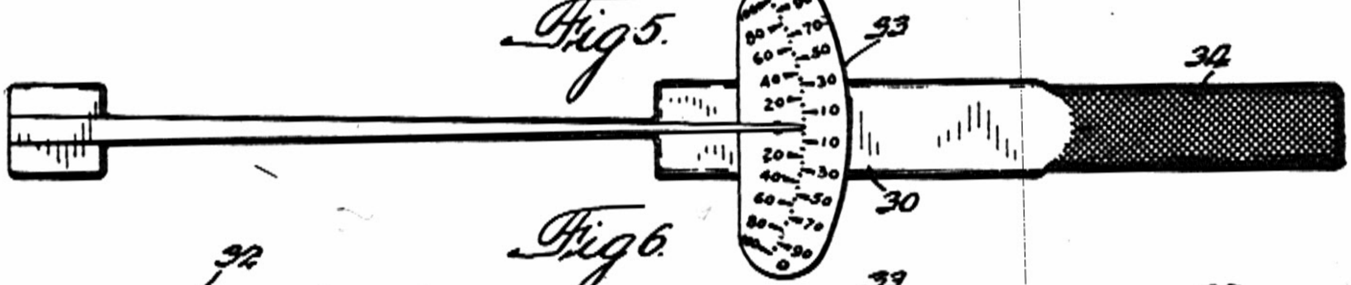
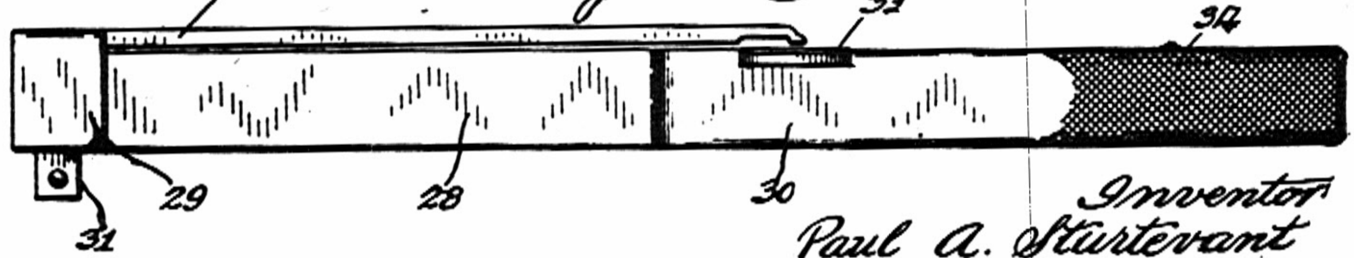


Fig. 6



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Attys.

Patented May 19, 1942 **2,283,707**

UNITED STATES PATENT OFFICE

2,283,707

TORQUE WRENCH

Paul A. Sturtevant, Elmhurst, Ill.

Application March 28, 1938, Serial No. 198,375

2 Claims. (Cl. 265—1)

This invention relates to a torque wrench and has special reference to a device for applying a tangential force to an object to be rotated and for measuring the applied force.

More particularly, this invention relates to a measuring wrench comprising a head having an object-engaging formation and a measuring beam extending from and fixed to said head with a handle fixed to the free end of the measuring beam, there being a graduated dial on the handle and a pointer for cooperation with the dial to indicate tangential force applied on the handle relative to the object.

In the building of modern high speed motors and subsequent re-building and tune-up work thereon, accurate and uniform tightening of studs and bolts is required. Should the tightening of studs and bolts be unequal and excessive tensions are applied to certain of the cylinder head studs or bolts, distortions and warpage of the cylinder blocks will result causing serious loss of power, increased oil consumption and rapid wear.

Workmen in depending upon their best judgment to apply the same tension to all bolts or nuts on a construction, in many instances, if not in most instances, apply either too little or too much force to the various bolts or nuts operated upon. Field tests have proven that the best of mechanics completely fail to equalize the force applied to the work through their sense of feel acquired through experience.

The present invention contemplates a measuring wrench having a means for determining the force applied to the object and for permitting bolts, nuts or the like to be drawn down to accurate tensions such, for example, as are recommended by the manufacturer. Different constructions and different materials require variations in the applied force and the application of such force by an operator using his best judgment is far from practical.

So far as applicant is aware, all measuring wrenches on the market today depend for the measurement of these applied forces on more or less complicated constructions involving small gears, glass dials, actuating rods, pull strings, and other similar complicated mechanisms. In the use of all of these elements, consideration must be given to the danger of breakage, care in handling, friction of the parts, and other similar things wholly apart from the actual handling of the tool. The absolute absence of friction is necessary to secure and maintain accuracy of measurement and this is not obtained in complicated structures.

In the present invention the head of the wrench is small and without cumbersome projecting devices which construction is essential because operating space is usually limited. The head of the present wrench is but slightly larger than the diameter of the ordinary socket. The measuring beam extending from the head is a simple rugged piece of steel measuring torsions without the aid of levers, coil springs, or gears. The pointer is secured preferably directly to the head and registers without movement on a dial fixed to the handle. The use of such a pointer secured directly to the operating head eliminates racks, pinions, pivots and fragile parts and its construction prevents possible misalignment under ordinary use and even under unreasonable abuse. The dial indicates tensions in either direction and is not necessary to be housed thereby providing easy reading in angular positions and in limited light. Where a dial covering of glass or Celluloid is employed in a construction of this type, these materials are easily scratched or blurred so that a reading of the dial is not readily obtainable.

For purposes of equal distribution of the deflection over the entire length of the beam and for eliminating excessive strain at any one point, the measuring beam is preferably of reduced cross section extending outwardly of the head. In a dial reading, for example, up to a hundred foot pounds, a beam is preferably employed which is never loaded beyond one-half of its elastic limit so as to prevent obtaining a set in the beam which would make its readings inaccurate.

One of the objects of this invention is to provide a measuring wrench of the character indicated above which is compact, light in weight, rugged and permanently accurate.

It is a further object of this invention to provide a measuring wrench of the hereinabove described type in which is eliminated all small gears, glass dials, actuating rods, pull strings and other similar complicated mechanisms which may readily get out of order.

A still further object of this invention is to provide a measuring wrench of the type hereinbefore mentioned in which the measuring beam thereof reduces in cross sectional area outwardly of the head.

It is also an object of this invention to provide a measuring wrench as above noted in which the pointer is of a single piece and is secured directly to the head for direct reading on an open faced dial to obtain a measurement of the torque in foot pounds by direct reading.

Further, it is an object of this invention to provide a head of small size and to eliminate all spacious and cumbersome devices projecting outwardly of the construction so as to permit of the use of the tool in a limited space.

The invention has also for its object to provide a measuring wrench which is simple in construction, is comparatively inexpensive to manufacture, and is durable.

Other objects and advantages of this invention will hereinafter be more particularly pointed out and for a more complete understanding of the characteristic features of this invention, reference may now be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is a top plan view of a measuring wrench embodying the features of this invention;

Fig. 2 is a side elevational view of Fig. 1;

Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 2 with intermediate portions thereof broken away;

Fig. 4 is an enlarged fragmentary sectional view of the handle portion of a wrench showing a modified form of handle construction embodying the features of this invention;

Fig. 5 is a top plan view of a modified form of measuring wrench embodying the features of this invention; and

Fig. 6 is a side elevational view of Fig. 5.

Referring now to the drawing and more particularly to Figs. 1 to 3 thereof, the present invention is embodied in a device including a head **10** preferably of cylindrical form having an object-engaging formation **11** extending therefrom in the direction of its axis. The head is preferably formed of chrome vanadium steel or such material as will withstand severe strains. The object-engaging formation **11** may be formed integrally with the head or, of course, may be of a separate piece having, for example, a pressed fit engagement with an aperture in the head.

The head **10** is slotted to receive one end of the measuring beam **12**, the slot being preferably milled to the precise measurement of the width of the beam and deep enough to receive the full width of the beam and, for convenience in manufacture, a pointer **13** in a slightly spaced relation to the beam. While the beam may have a pressed fit engagement in the slot of the head, it has been considered preferable, by reason of the hard usage to which such a tool is employed, to double rivet the beam to the head as by means of the rivets **14**. The pointer **13**, being of relatively small width and depth, is preferably electrically welded to the head although the pointer, of course, may likewise merely have a pressed fit engagement in the slot.

The measuring beam **12** preferably tapers in thickness from the wrench head **10** to an operating handle **22** or, in other words, the beam reduces in cross sectional area outwardly of the head. Such continuous reduction is preferably uniform and while the cross sectional area may be decreased in both width and thickness or in either width or thickness separately, the drawing discloses a preferable condition in merely decreasing in thickness uniformly from the head end to the opposite free end. Such tapering in thickness of the measuring beam distributes the deflection equally over the entire length of the beam for the elimination of excessive strain at any one point.

The pointer extends from the head over the beam and tapers in width to the free end thereof in substantially the same manner as the beam although, of course, this is merely a preference in manufacture and desirable from a standpoint of appearance and for the elimination of an overhanging ledge. The pointer is formed of a single piece preferably of chrome nickel steel, one end thereof being secured directly to the head within the aperture thereof and being stationary therewith. This pointer has no other movement than that imparted to the operating head and registers on a dial **15** carried on the handle, the dial having relative movement with the pointer owing to the deflection of the measuring beam to which the handle is secured.

The pointer is relieved as at **16** over that portion registering with the dial with the exception of the extreme end **17** which is beveled to a line for readily obtaining a correct reading on the dial with the fullest possible vision.

The dial **15** is preferably formed of brass having a cover plate **18** on which readings are determined preferably in foot pounds. The cover plate of the dial is graduated to indicate forces in either direction from a normal setting and the dial **15** is fixed to a yoke **19** of the operating handle **22** which is secured to the free end of the measuring beam **12**.

The operating handle **22** includes an extension comprising the yoke **19** and a rod **23**, the yoke being preferably a cylindrical member which is slotted to receive the free end of the beam **12**. While the beam may be a pressed fit in the slot of the yoke, it is shown as also being riveted thereto by means of a rivet **20**, the slot being tapered to conform to the taper of the beam. The end of the yoke opposite to the slotted end is provided with an axial aperture **21** to receive one end of the rod **23**, a cylindrical gripping portion **24** telescoping the free end of the rod **23** in a pressed fit. The yoke end of the rod **23** may be a pressed fit in the aperture **21** of the yoke **19**, although it likewise is provided with a rivet **25** which, besides acting to secure the rod **23** in position, also secured the dial **15** on a flattened or recessed portion of the yoke.

Referring now more particularly to Fig. 4, a modified form of handle construction is shown on the above described wrench in which the rod **23a** of the handle **22a** is secured to the yoke **19** extending from the beam **12** in the same manner as has been heretofore discussed. However, the tubular portion **24a** of the handle, in telescoping the rod **23a**, preferably extends a greater distance over the rod, and the bore of the tube is greater in diameter than the outside diameter of the rod so as to stand spaced therefrom.

The tube **24a** of the handle is provided with oppositely disposed apertures preferably centrally of the length thereof in registration with an aperture in the end of the rod **23a** for receiving a pin **26**. The handle portion **24a**, therefore, is pivotally mounted on the rod **23a**, or on a projection of the beam, with spacers **27** disposed between the bore of the tubular portion of the handle and the outer periphery of the rod to predetermine the spaced relation thereof.

Torque is the product of a tangential force multiplied by the radius of the part it rotates. The radius in this instance is the distance between the axis of the head **10** and the axis of the pivot **26**. In the use of a handle of this character the accuracy of the measurement in foot pounds on the dial is more positive than where the torque is determined by the position of the hand on the handle of the tool. The tubular portion **24** in the previously described embodiment is just about the length of the width of an ordinary hand so that the position of the hand in applying the force to the object is invariably the same in the use of the tool by anyone.

In the use of a longer handle where, for example, one operator may use one handle while another operator may use two hands for applying a substantially greater force, the embodiment shown in Fig. 4 will accommodate any length of handle and always retain the same radius by which the torque is measured. The handle is free floating on the rod and applies the pressure to the rod at the same point at all times when the spacing is maintained between the tubular portion and the rod.

Referring now more particularly to Figs. 5 and 6, a measuring wrench is shown wherein the head, beam and handle are formed of a single piece instead of, as in the heretofore described embodiments, in separate pieces. A single piece of stock may preferably be forged to provide a measuring beam **28** between a head **29** and a handle portion **30**. The beam **28** may be tapered in width as in the previously described embodiments and the head **29** has a usual object-engaging formation **31** formed thereon. The top of the head is preferably slotted to receive one end of the pointer **32**, the free end of the pointer cooperating with a dial **33** to indicate the measurement of the applied force.

For convenience in operation and to designate the proper point at which force is to be applied to obtain a correct reading of foot pounds on the dial, the extreme end **34** of the handle may be rounded and knurled so that the same radius of torque is maintained by different users and such construction also provides a desirable grip. The operation of the tool shown in Figs. 5 and 6 is the same as that previously described with reference to the first discussed embodiment.

While several embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

I claim:

1. A measuring wrench comprising a head having an object-engaging formation, a deflecting measuring beam extending from and fixed to said head, a handle including a gripping portion and an extension, said gripping portion telescoping a portion of said extension in a spaced relation and being pivotally secured at an intermediate portion thereon to said extension, a graduated dial fixed to said handle, and a pointer for cooperation with said dial to indicate tangential force applied on said handle relative to said object.

2. A measuring wrench comprising a head having an object-engaging formation, a deflecting measuring beam extending from and fixed to said head, a handle including a gripping portion and an extension, said extension being fixed to the free end of said beam, said gripping portion being of tubular cross section and telescoping said extension in a spaced relation therewith and being pivotally secured thereto, a graduated dial fixed to said extension, and a pointer for cooperation with said dial to indicate tangential force applied on said handle relative to said object.

PAUL A. STURTEVANT.

Excerpt from Plaintiff's Exhibit No. 3.

May 19, 1942. H. W. ZIMMERMAN 2,283,888

TORQUE MEASURING WRENCH

Filed Nov. 22, 1937 6 Sheets-Sheet 1

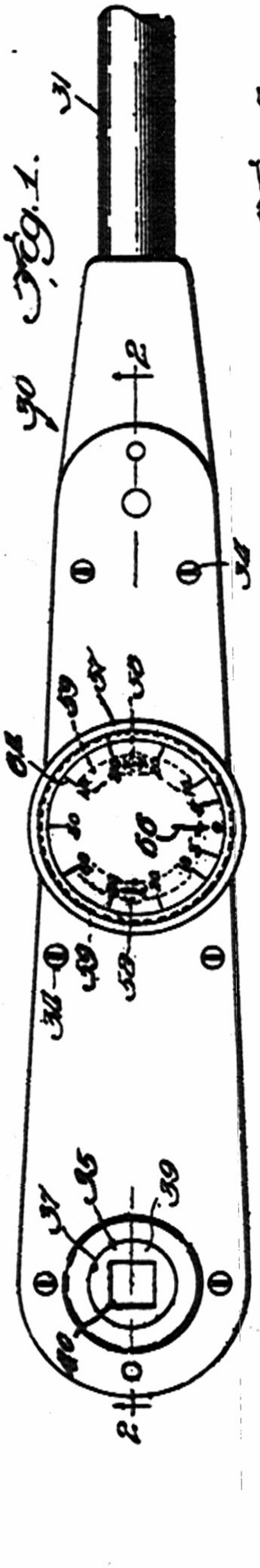

Fig. 1.

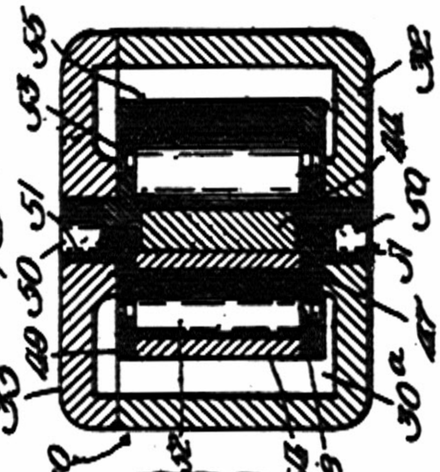

Fig. 4.

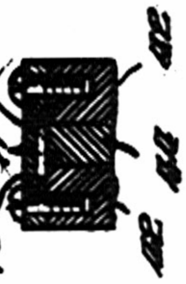

Fig. 5.

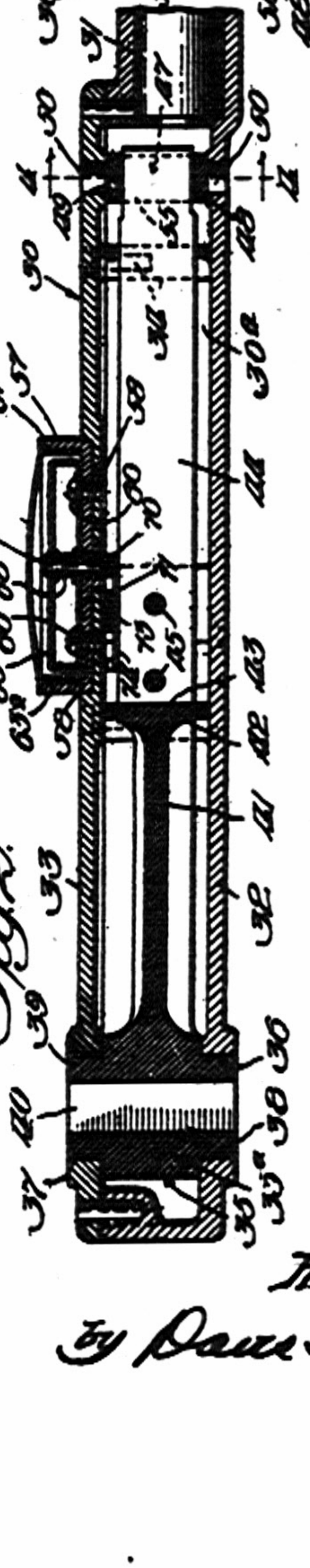

Fig. 2.

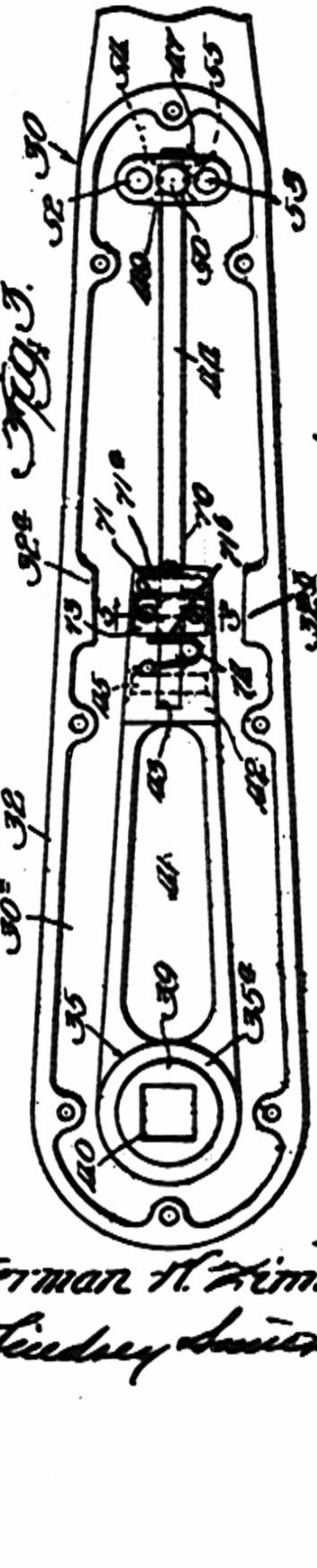

Fig. 3.

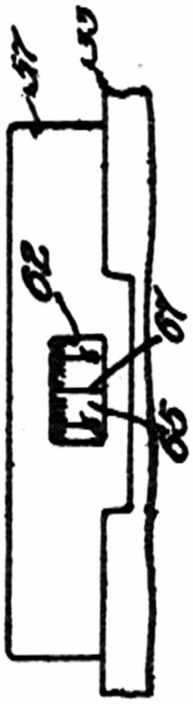

Fig. 6.

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TORQUE MEASURING WRENCH

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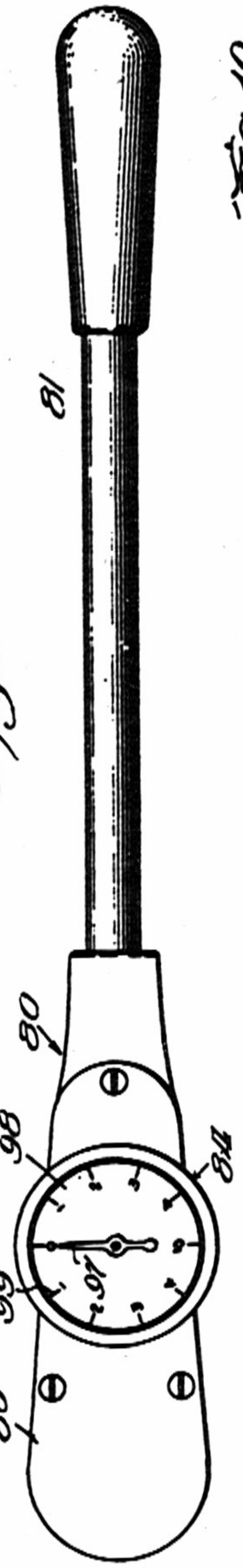
Fig. 7.

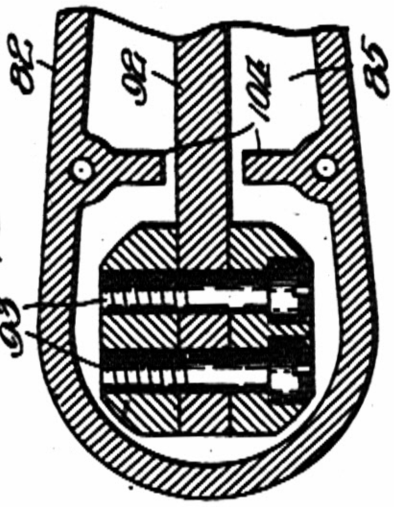
Fig. 10

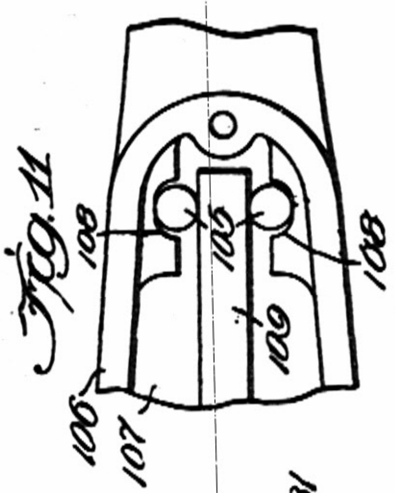
Fig. 11

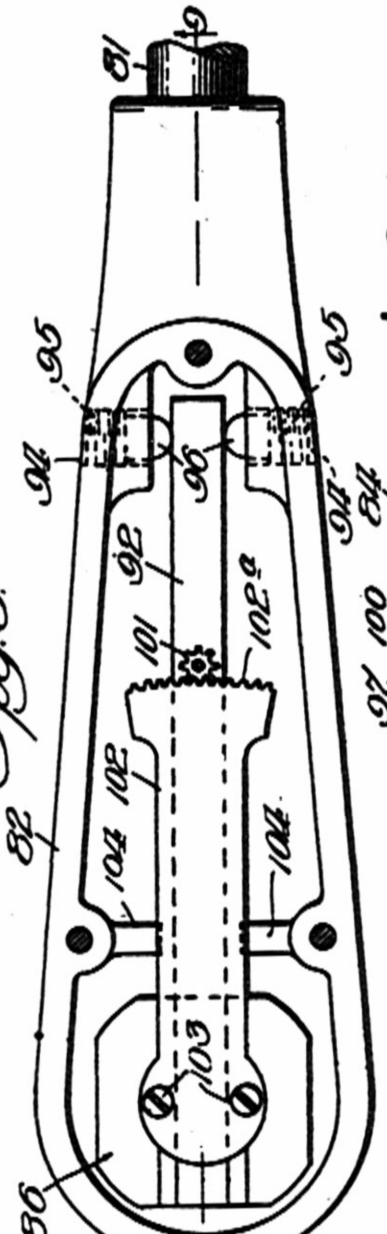
Fig. 8

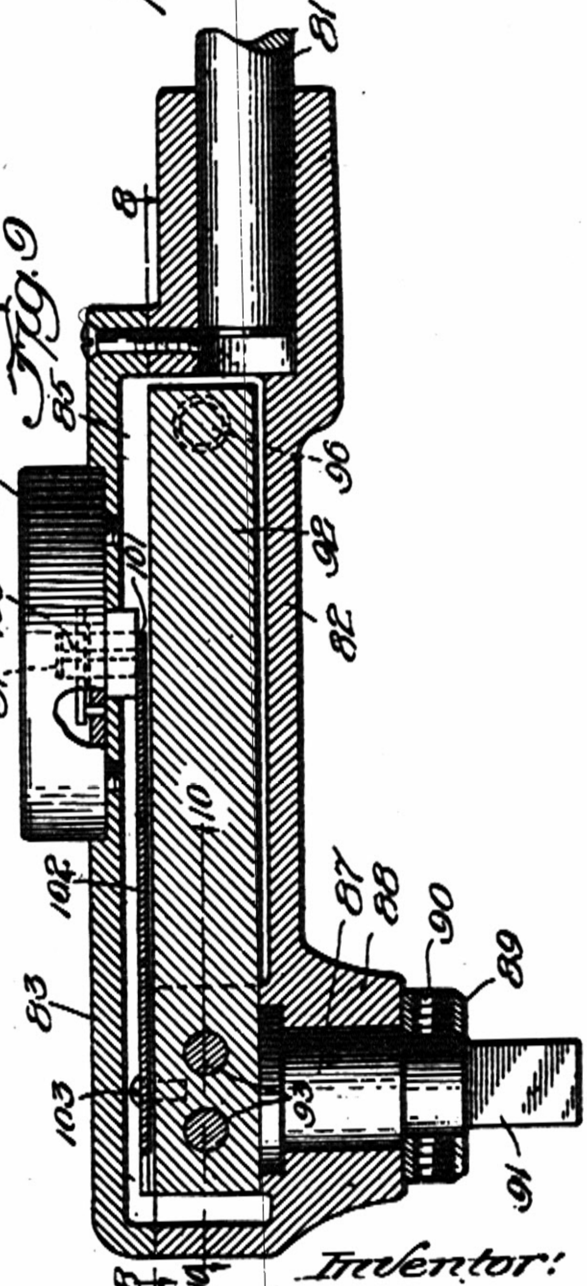
Fig. 9

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TORQUE MEASURING WRENCH

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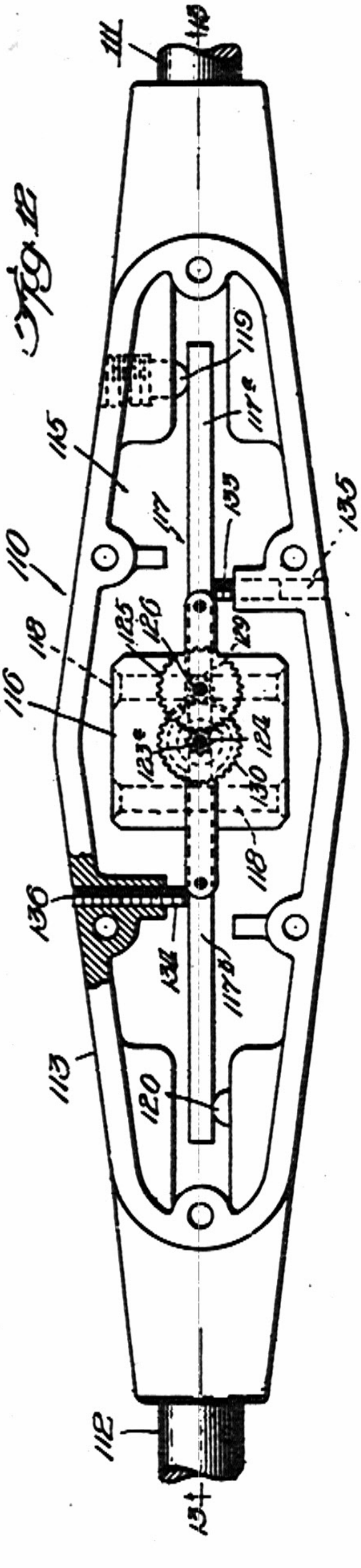

Fig. 12

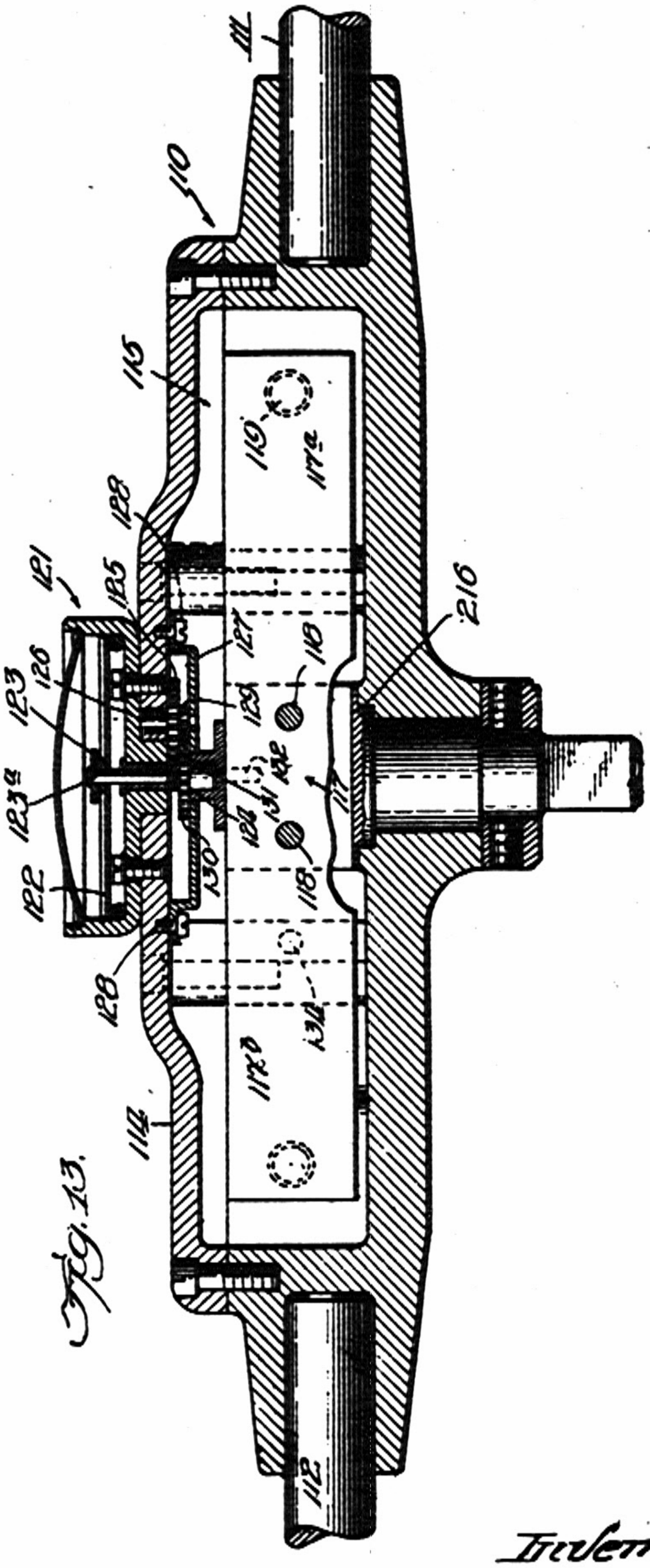

Fig. 13.

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TORQUE MEASURING WRENCH

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Fig. 14.

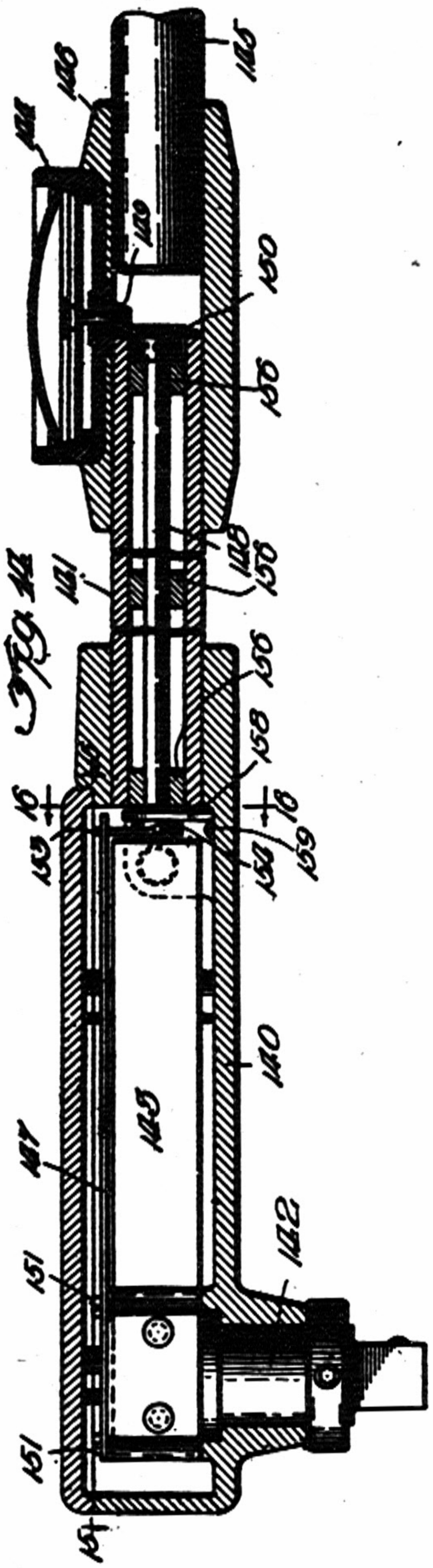


Fig. 15.

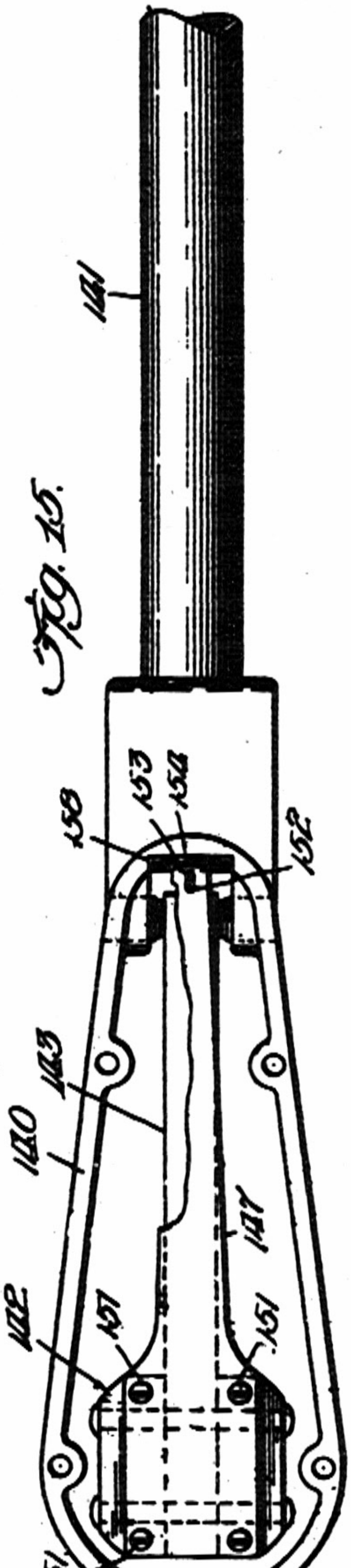
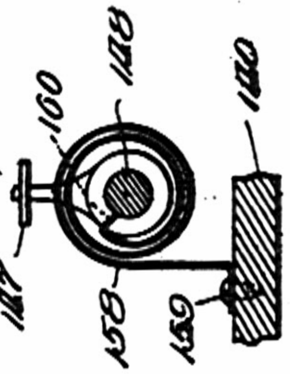


Fig. 16.



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TORQUE MEASURING WRENCH

Filed Nov. 22, 1937 6 Sheets-Sheet 5

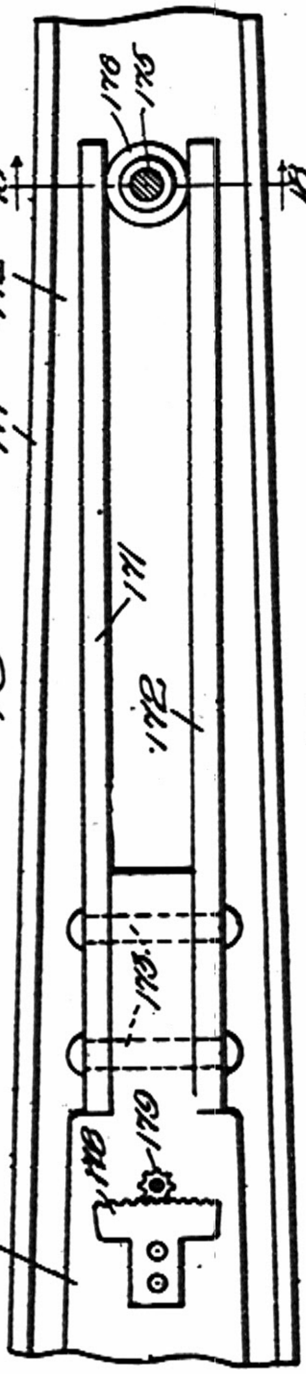

Fig. 17.

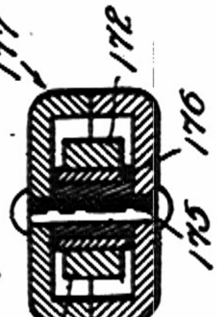

Fig. 18

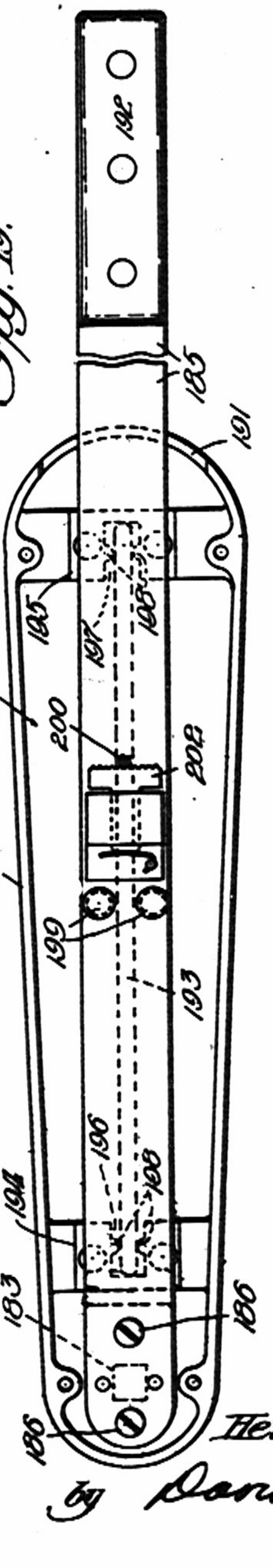

Fig. 19.

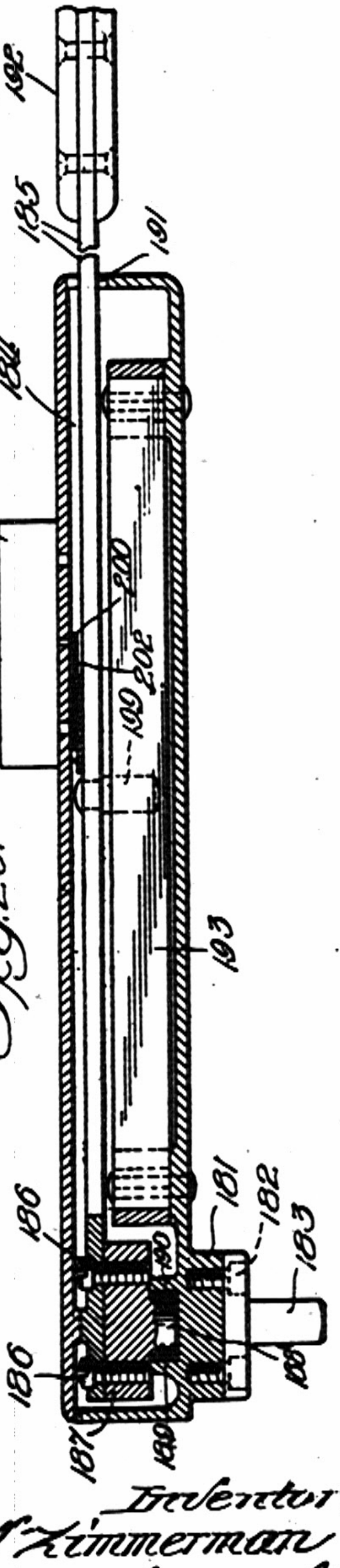

Fig. 20.

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TORQUE MEASURING WRENCH

Filed Nov. 22, 1937 6 Sheets-Sheet 6

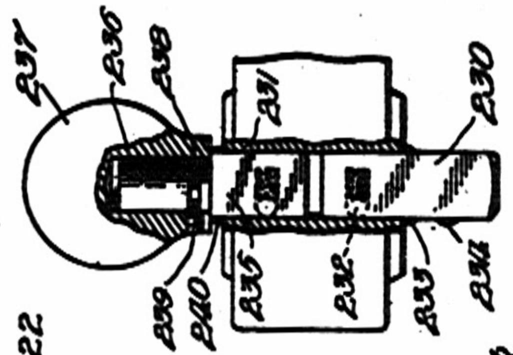

Fig. 23.

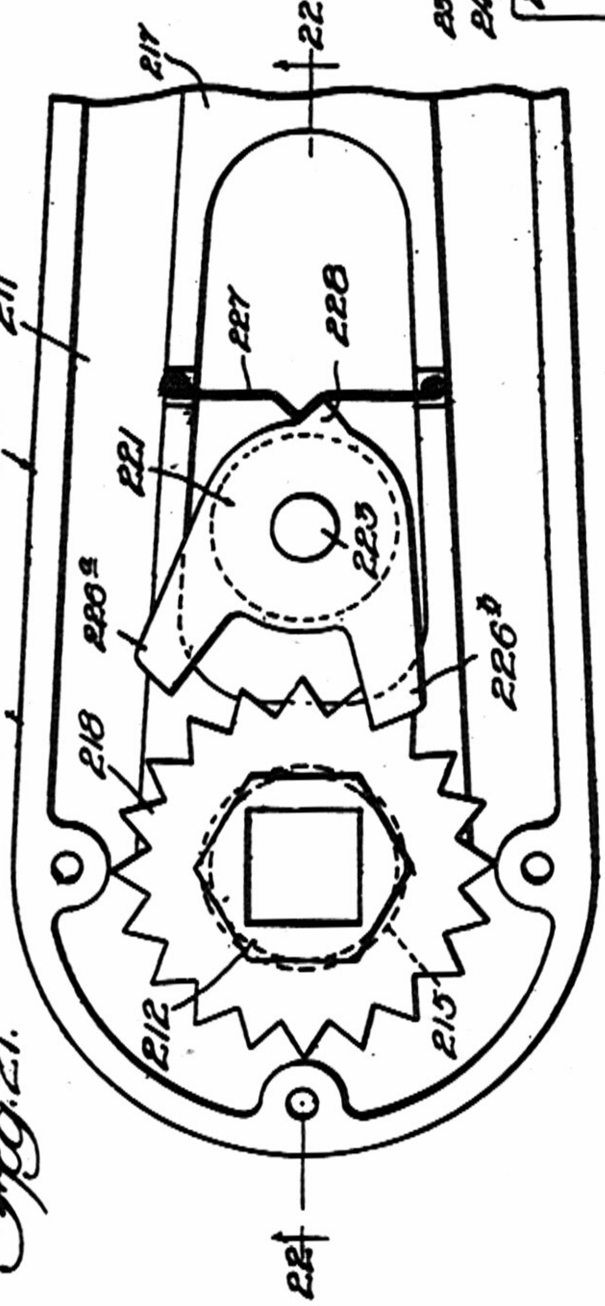

Fig. 21.

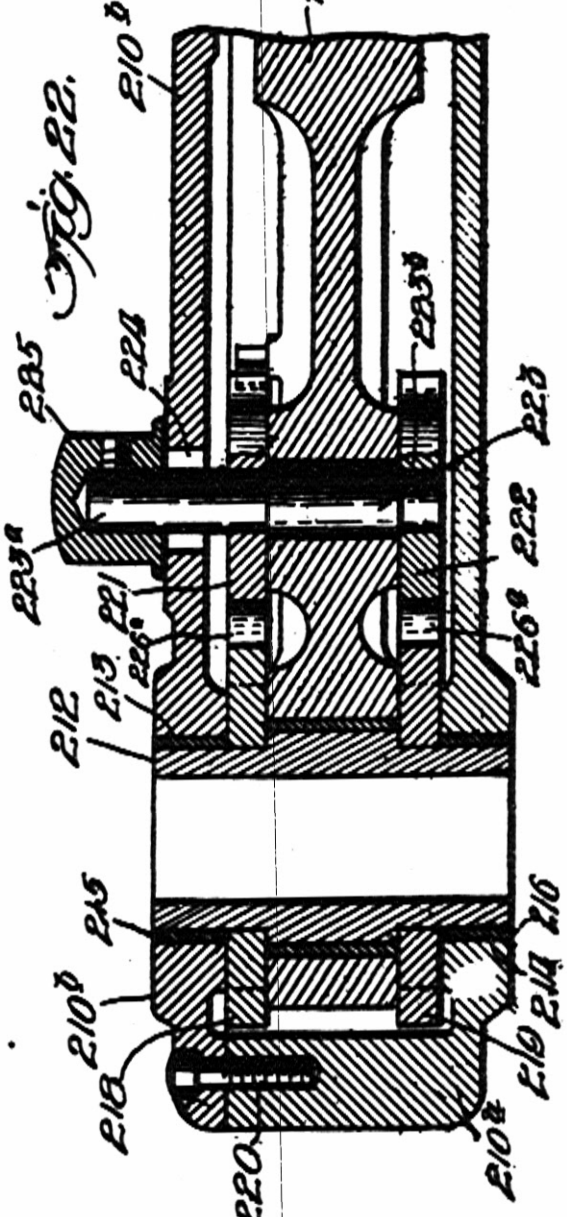

Fig. 22.

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UNITED STATES PATENT OFFICE

2,283,888

TORQUE MEASURING WRENCH

Herman W. Zimmerman, Highland Park, Ill., assignor, by mesne assignments, to Automotive Maintenance Machinery Co., North Chicago, Ill., a corporation of Illinois

Application November 22, 1937, Serial No. 175,863

38 Claims. (Cl. 265—1)

My invention relates to wrenches and it has to do more particularly with wrenches adapted for measuring the force or torque applied therethrough to nuts, bolts, studs, and other similar pieces of work.

My invention further has to do with a wrench embodying relatively movable members, such members being so arranged that one of them is operatively engaged with the work and relative movement between the members is yieldably opposed by spring means. In wrenches of this character, the force or torque applied through the wrench is determined by measuring the extent of relative movement between the wrench members as permitted by deflection of the opposing spring means.

The manufacture of a wrench of the foregoing kind presents various problems, one of which is inexpensive production of successive wrenches having a predetermined power rating and each of which will measure the force or torque applied to a certain piece of work in the same uniform precision manner. In other words, all wrenches of a certain power rating produced for any particular kind of work should, preferably, measure the force or torque applied in a substantially uniform manner without any appreciable variation in accuracy. I have found that this condition presents a difficult problem.

For example, coil springs have heretofore been employed for the foregoing purposes and, while they well serve their purpose in each individual wrench, they are subject to certain conditions involving the difficulties above mentioned. As is well known, it is customary in the manufacture of coil springs, and particularly those suitable for torque measuring wrenches, to first form or coil the spring from relatively soft wire and to then temper the same to the desired hardness. In this operation, a scale forms on the surface of the metal which cannot be practically removed in the formed coil spring, with the result that in a spring of this character, as it is compressed and expanded from time to time, the scale thereon tends to cause variation in accuracy of the tension of the spring. This variation tendency in different springs is not uniform. These variable conditions existing in different springs necessarily cause variation in the tensioning action of different coil springs even though they are manufactured successively under the same set of specifications. For these reasons, among others, manufacturers of coil springs do not usually guarantee the same to be accurately rated and they usually allow for a minimum percentage of error as high as 5 per cent. Spring tension variation of this extent requires very careful handling, sorting, testing and adjusting of springs that are to be used in the manufacture of precision devices like torque wrenches.

One of the objects of my invention is to provide an improved torque measuring wrench of the foregoing character which embodies spring means which is not subject to the foregoing objectionable conditions and in which the difficulties mentioned are eliminated.

Another object is to provide an improved wrench of the foregoing character which is simple in construction, is inexpensive to manufacture and to maintain in use, is of rugged and compact construction, and is adapted to measure the force or torque applied therethrough in a precision manner.

A further object is to provide a torque measuring wrench of the foregoing character wherein relative movement between the relatively movable wrench members is yieldably opposed by an elongated leaf-like spring means, which spring means is so constructed and arranged that any number of successive wrenches of the same class and power embodying the same may be manufactured with each wrench adapted to uniformly measure the force or torque applied to any particular piece of work.

An additional object is to provide an improved torque measuring wrench of the foregoing character which includes a leaf spring member formed of a high-grade steel to a predetermined size and shape and free from scale, which spring is of such character that successive similar springs may be made and assembled in the wrench with the assurance that successively made wrenches embodying the same will operate in a substantially identical manner.

Additional objects are to provide a torque measuring wrench of the foregoing character embodying precision spring means free from scale and other physical conditions that might tend to effect its deflection; to provide a torque measuring wrench of the foregoing character having spring means so constructed and arranged as to insure accuracy in the measurement of the force or torque, and which will continue to function in a highly accurate manner over long periods of time; and to provide an improved ratchet type torque measuring wrench embodying the foregoing features.

Other objects and advantages will become apparent as this description progresses and by reference to the drawings wherein—

Figure 1 is a top plan view of one form of wrench embodying my invention, the outer portion of the handle portion thereof not being shown;

Fig. 2 is a vertical, longitudinal sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the structure shown in Figs. 1 and 2 with the top cover portion thereof removed;

Fig. 4 is an enlarged section taken substantially on line 4—4 of Fig. 2;

Fig. 5 is an enlarged section taken substantially on line 5—5 of Fig. 3;

Fig. 6 is an enlarged side elevational view of the dial structure shown in Figs. 1 and 2;

Fig. 7 is a top plan view of another form of wrench embodying my invention;

Fig. 8 is an enlarged horizontal sectional view of the wrench shown in Fig. 7, which view is taken substantially on line 8—8 of Fig. 9;

Fig. 9 is a longitudinal, vertical sectional view taken substantially on line 9—9 of Fig. 8;

Fig. 10 is a horizontal sectional view taken substantially on line 10—10 of Fig. 9;

Fig. 11 is a fragmental sectional view showing a modified form of means for mounting the spring which opposes relative movement between the wrench members;

Fig. 12 is a view similar to Figs. 3 and 8, except showing a further modified form of wrench embodying my invention;

Fig. 13 is a longitudinal, vertical sectional view taken substantially on line 13—13 of Fig. 12;

Fig. 14 is a vertical, longitudinal sectional view of still another form of wrench embodying my invention;

Fig. 15 is a horizontal sectional view taken substantially on line 15—15 of Fig. 14;

Fig. 16 is a section taken substantially on line 16—16 of Fig. 14;

Fig. 17 is a fragmental sectional view of another form of wrench embodying my invention;

Fig. 18 is a section taken substantially on line 18—18 of Fig. 17;

Fig. 19 is a view similar to Figs. 3, 8 and 12, except showing a further modified form of wrench embodying my invention;

Fig. 20 is a longitudinal, vertical sectional view through the structure shown in Fig. 19;

Fig. 21 is a fragmental view of a ratchet form of wrench embodying my invention;

Fig. 22 is a section taken substantially on line 22—22 of Fig. 21; and

Fig. 23 is an elevational view, partially in section, illustrating means that may be applied to the wrenches shown in Figs. 2 and 21 for engaging the wrench with the work and also for aiding in support of the wrench upon the work during the use thereof.

The wrench shown in Figs. 1 to 6, inclusive, includes a chambered head 30 to which is connected a handle 31. The head 30 includes a body section 32 having a rather deep chamber 30a therein and a top cover section 33 secured to the body section 32 by a plurality of screws or other fastening devices 34.

The forward end of the head 30 rockably supports a work-engaging member 35. More particularly, the body and cover sections are provided with aligned openings 36 and 37 in which are received upper and lower reduced cylindrical hub-like portions 38 and 39 on the annular head 35a of the work-engaging member 35. The work-engaging member is provided with a central opening 40 of rectangular or other suitable shape to prevent rotation of the supported part, and this opening is adapted to receive any suitable work-engaging adapter (not shown) for operatively connecting the wrench with the work.

The work-engaging member 35 is further and operably connected with the tool head 30 (Figs. 2 and 3) by spring means in such a way that relative rock movement between the head and work-engaging member, when the wrench is engaged with the work and the wrench handle 31 is actuated to tighten or loosen the work, is yieldably opposed; and by measuring the extent of relative rock movement between the head 30 and work-engaging member 35, as permitted by deflection of the spring means, I determine the amount of force or torque applied to the particular piece of work in tightening or loosening the same.

More particularly, the work-engaging member 35 is provided with a rearwardly-extending webbed arms 41 which terminates in a spring attachment head portion 42 (Figs. 2 and 3) having a longitudinally extending and vertically disposed slot 43 therein. The spring means that I employ takes the form of an elongated leaf-like spring member 44 having its forward end received within the arm slot 43 and fixedly secured therein by rivets 45 or other suitable securing devices. It is to be understood that the spring member 44 may be referred to as a strip spring member and that it may take the cross-sectional shape shown or any other suitable cross-sectional shape such as square, circular, oval or the like. The rear end of the spring 44 is connected to the wrench head 30 by a support unit 47 (Figs. 2, 3 and 4) which is automatically adjustable as the spring 44 is deflected to compensate for the changed position of the deflected spring and thereby avoid abnormal distortion of the spring, which, if it should occur, might create a condition causing a false registration of the torque or force being applied to the work.

The support unit 47 is located at the rear end of the wrench head chamber 30a and it is pivotally carried by these sections in such a way as to maintain at all times substantially the same alignment relation between the longitudinal center line of the spring 44 and the axis of the unit 47. Specifically, the unit 47 (Fig. 4) includes a pair of end plate members 48 and 49 each having an outwardly extending cylindrical stud 50 rotatably engaging, respectively, in openings 51 formed in the body and cover sections 32 and 33. The end plates 48, 49 are connected together in spaced relation by post members 52 and 53 around which are disposed roller sleeve members 54 and 55. The post members 52 and 53 are spaced apart to such an extent and the sleeves 54 and 55 are of such diameter as to provide a space 56 between the sleeves 54, 55 in which the rear end of the spring 44 is received.

It will be seen that in the use of the foregoing structure, with the work-engaging member 35 applied to the work and with the operator grasping the handle 31 and moving the same to tighten or loosen the work, the handle 31, the tool head 30, the work-engaging member 35 and the work will tend to move as a single unit. However, when the work offers sufficient resistance to turning movement, as when tightening the same, to overcome the initial tension of the spring 44, such spring will be deflected, permitting relative rock movement between the work-engaging member

35 and the tool head 30. As the work offers added resistance, the deflection of the spring 44 will be increased, during which time the spring 44 becomes slightly bowed. As the spring 44 is deflected and bowed, the spring connecting unit 47 will rotate in its bearings 50 to accommodate the changed angular position of the spring 44 caused by its bowing so that the end portion of the spring 44 engaged with the unit 47 will always assume substantially the same position relative to the axes of the rollers 54, 55 of the unit 47, avoiding any cramping of the deflecting spring that would tend to influence or upset its normal deflecting action.

In further carrying out my invention, I construct the strip spring member 44 in such a way as to insure its operation wtih a high degree of accuracy at all times. The construction of the spring member is such that, for any particular wrench having a particular rated power, any desired number of springs may be made up and, when applied to wrenches, they will all function with substantially uniform rated accuracy. To this end, I employ a spring member formed of a high-grade steel which is tempered to the desired hardness to provide the desired tension rating. The tempered spring is then ground or otherwise treated to remove all scale therefrom and to give it predetermined dimensional characteristics so that a predetermined pressure will be required to cause an initial deflection of the spring and to cause deflection of predetermined extent. By providing a strip spring member of this character I find that by mounting it in the manner described, the force or torque applied to the work may be measured in a precision manner and that manufacture of wrenches of this character in quantity is facilitated and may be carried out in an inexpensive way without sacrifice in precision requirements. For any particular wrenches of predetermined size and power rating, parts may be made up in quantity with the assurance that they may be assembled into complete wrenches that will have the desired power rating.

It will be understood that the power rating of any spring 44 may be varied by changing the cross-sectional area thereof and/or by using a spring having a greater or less active length between the work-engaging member and the unit 47. This effect may also be accomplished by varying the length of the work-engaging arm 41; but once these conditions have been established in any wrench having a particular rated power, successive wrenches may be accurately reproduced with each having a substantially uniform power rating.

The relative movement between the head 30 and the work-engaging member 35 is measured, preferably (but not necessarily) in terms of inch-pounds pressure applied, by indicating mechanism which will now be described. Specifically, I employ a detachable indicator unit which includes a cup-shaped casing 57 (Figs. 1 and 2) having its bottom part secured to the cover section 33 by a pair of diametrically opposed screws 58. The openings through which the screws 58 extend take the form of elongated arcuate slots 59 that permit substantial rotation of casing 57, which rotation is tensioned by spring washers 60 disposed between the heads of the screws 58 and the adjacent wall of the casing 57. The casing 57 is provided with an inverted, cup-shaped, transparent cover 61, having a skirt portion 61^a snugly fitting against the inner part of the side wall of the casing 57. The side wall of the casing 57 is provided with a circumferentially extending slot 62 (Fig. 6) which is covered by the transparent cover side wall 61^a, for a purpose which will be referred to more particularly hereinafter.

The indicator unit further includes an inverted cup-shaped dial drum 63 (Fig. 2), the side wall 63^a of which extends in substantially parallel relation to the side walls of the casing 57 and cover 61. The top of the dial drum 63 is provided with a graduated scale 64 and the side wall of the drum is provided with a corresponding scale 65. The top of the transparent cover 61 has an indicating mark 66 and the skirt 61^a of the transparent cover at the center of casing slot 62 is provided with a corresponding indicating mark 67. With the foregoing construction, the casing 57 and cover 61 may be set as a unit so that the indicating marks 66 and 67 coincide with any desired mark (zero, for example) on the dial scales 64 and 65, respectively; and, by rotating the dial 61 in either direction, the extent of relative movement of head 30 and member 35 and the pressure applied through these members to the work will be indicated by the extent of movement of the dial scales relative to the indicating marks 66 and 67.

The dial drum 63 is carried by a tubular shaft element 68 which extends downwardly through the central boss-like portion of the bottom part of the casing 57 and it fixedly receives a shaft 69 extending into the head chamber 30^a where it receives a pinion 70 which is operatively engaged with a rack member 71 carried by the work-engaging member arm 41.

The rack member 71 is provided with a squared and toothed rack portion 71^a which directly engages the pinion 70, and this rack member is supported for longitudinal adjusting movement to accommodate the arcuate movement of its supporting arm 41 when relative rock movement takes place between the head 30 and work-engaging member 35. Specifically, the rack member is of T-shape and its T-stem portion 71^b is snugly and slidably received in a slideway 72 formed by a recess in a cross plate 73 supported by the upper rear end portion of the work-engaging member arm 41. The rear end of the rack member stem 71^b is engaged by a U-shaped spring 74 carried by the arm 41, which spring is so constructed and arranged as to continuously urge the rack member forwardly into engagement with the pinion 70 but will permit the rack member to be moved backwardly and forwardly to accommodate the arcuate movement of the rack member above mentioned. With this arrangement, as soon as the work offers sufficient resistance to overcome the initial tension of the spring 44, such spring will be deflected and the head member 30 will rock relatively to the work-engaging member 35 and its arm 41, thereby moving the indicating unit 57 and its pinion 70 relative to the rack member 71 and causing the dial drum 63 to rotate. The extent of rotation of the dial drum and the amount of pressure applied to effect such rotation may be accurately determined by noting the extent of movement of the dial scales relative to the indicating marks 66 and 67. At times, the operator, when actuating the wrench, may be in such a position that the dial scale 64 is within his vision while, at other times, the dial scale 65, at the side of the dial drum, may be within his vision. In either event, he can readily determine the dial scale reading and the amount of pressure applied.

It will be appreciated that there is a safe limit to the extent of deflection of the spring 44. To avoid over-deflection of such spring and, in turn, probable detrimental distortion of the same which might affect accuracy of the wrench, inwardly-extending stop lugs 32^a and 32^b of equal length are provided on opposite side walls of the head chamber 30^a adjacent the rear end of the arm 41. The forward end of the arm 41 will abut against the stops 32^a and 32^b upon a predetermined, relative rotational movement between the head 30 and work-engaging member 35. These lugs 32^a and 32^b are of such length that they stop further relative rotational movement of the parts when the safe deflection limit of the spring is reached or is nearly reached. Of course, the stop lugs 32^a and 32^b may be of any desired length to limit the deflection of the spring 44 to any desired extent.

Wrenches embodying my invention may take various forms, and in Figs. 7 to 10, inclusive, I have shown another form which may well serve my purpose in taking care of certain kinds of work. Specifically, this wrench includes a head 80 having a handle 81 thereon. The head 80 includes a bottom chamber section 82 and a removable top cover section 83 which supports an indicating unit 84. The head sections provide a head chamber 85 in which I rockably mount a work-engaging member 86. The work-engaging member is provided with a stepped stub shaft portion 87 which finds suitable bearing in a thickened forward portion or boss 88 in the bottom section 82, and this shaft is of sufficient length to extend below the boss 88 where it receives a collar 89 secured thereto by lock screws 90, whereby the shaft and the work-engaging element 86 are fixedly secured in place for rock movement. The outward projecting end of the shaft 87 is provided with a shank or other suitable means 91 for direct engagement with the work or for reception of suitable adapter means which may be engaged with the work, as determined by the character of the work to be tightened or loosened.

The work-engaging member is slotted to receive one end of a strip spring member 92 similar to the previously described spring 44 and which spring is secured in place by screw members 93. The spring 92 extends rearwardly within the head chamber 85 and its rear end is operably connected with the head 80 by adjustable abutment means. More particularly, the head 80 near the rear end of the chamber 85 is provided in its sides with aligned threaded openings 94 in which are received abutment members having a threaded shank 95 and a rounded abutment head 96 projecting into the head chamber. The spring 92 extends rearwardly between the abutment members and such members are adjusted inwardly, preferably to similar extents, substantially into engagement with the side faces of the spring 92 so that when the wrench handle 81 is grasped and rotated in either direction the pressure applied will be transmitted through the head 80, the spring 92 and the work-engaging member 86 to the work.

As in the first-described form, when the work offers sufficient resistance to overcome the initial tension of spring 92, relative rock movement takes place between the head 80 and work-engaging member 86, and by measuring the extent of this movement one may determine, through the indicating unit 84, the amount of pressure applied. The indicating unit 84 may include a hand 97 movable relative to a dial 98 having a scale 99 thereon calibrated to register, preferably (but not necessarily), inch-pounds pressure. The hand 97 is connected through suitable shaft means 100 to a pinion 101 which is operably connected to the work-engaging member 86. More particularly, the work-engaging member 86 is connected to the pinion 101 by an arm 102, the forward end of which is fixedly secured to the work-engaging members by screws or other suitable fastening devices 103. The rear end of the arm 102 is provided with a rack portion 102^a which engages the pinion 101; and, with this arrangement, when the work offers sufficient resistance to cause deflection of the spring 92 and relative movement of the head 80, as when tightening the work, such movement of the head and pinion 101 relative to the rack portion 102^a will cause the gage hand 97 to rotate relative to the dial scale and register the extent of this movement in terms of pressure applied.

The side walls of the bottom section 82 of the head are provided with stop lugs 104 which are adapted to engage the opposite faces of the spring 92 upon a predetermined relative rotational movement between the parts, thereby limiting the extent of deflection of the spring 92 within safe operating limits. This arrangement is substantially the same as the spring stop arrangement of the first-described form, except that the stop members here engage the spring instead of the work-engaging member.

In order to lessen the tendency of the abutment elements 96 to cramp the spring 92, the spring-contacting portions of these abutments are rounded as shown in Fig. 8. However, if desired, rollers 105 may be substituted for the abutment elements 96, as shown in Fig. 11. More particularly, the casing head 106 (Fig. 11) is provided with a chamber 107, similar to the chamber 85, and the rear portion of the wall of this chamber is provided with a pair of vertical and arcuate-shaped roller seats 108 in which the rollers 105 are received. These rollers are of such diameter and the seats 108 are spaced apart to such an extent that the rear end of the strip spring 109 is snugly received therebetween. The roller action between the spring and rollers will tend to minimize the tendency to cramp the spring 109 and abnormally distort the same.

My invention is also adaptable to so-called double-handle wrenches, or wrenches having two oppositely extending handles adapted to be grasped by the hands of a single operator or by different operators. To this end, I may employ a structure similar to that shown in Figs. 12 and 13, which includes a wrench head 110 having aligned handles 111 and 112 extending from the opposite ends thereof.

The wrench head 110 (Figs. 12 and 13) is formed of a chambered bottom section 113 and a top section 114 providing a head chamber 115. Within the chamber 115, and preferably midway between the handles 111, 112, I employ a work-engaging member 116 similar in construction and mounting to the work-engaging member 86 of the second-described form. The work-engaging member 116 is provided with a cross slot in which is secured a strip spring 117. The spring 117 is of sufficient length to extend substantially throughout the length of the head chamber 115 and its mid-portion is secured in the work-engaging member slot by suitable rivets or other fastening devices 118. In this way, strip spring arms or elements 117^a and 117^b, of substantially equal length, extend in opposite directions from the work-engaging member 116. If desired, the strip spring arms may take the form of separate spring members having their adjacent ends rigidly carried by the work-engaging member 116.

The free ends of the spring arms 117^a and 117^b are operably connected with the head 110 by rounded abutment elements 119 and 120 disposed on the opposite side walls of the head so that when the handles 111 and 112 are grasped and rotated in clockwise direction (as viewed in Fig. 12), as in tightening the work, both spring arms 117^a and 117^b will be effective to yieldably oppose relative rotation between the head 110 and work-engaging member 116.

In the use of this structure, as with the previously described structures, when the work offers sufficient resistance to overcome the initial tension of the spring arms 117^a and 117^b, head 110 will rotate clockwise relative to the work-engaging member and, by measuring the extent of this movement, one may determine the amount of pressure applied. This measurment may be accomplished by an indicating unit 121 similar to the indicating unit of the first-described form, except that a stationary dial 122 and a rotatable hand 123 are employed instead of the drum dial structure 63.

The rotatable hand 123 (Fig. 13) which corresponds to the hand 97 (Fig. 7) is carried by a rotatable shaft 124 which extends into the head chamber 115 where it receives a pinion 124. The pinion 124 meshes with a larger gear 125 supported by a shaft 126, the opposite ends of which are journaled in the cover section 114 and in a cross-supporting bracket 127 secured to the under side of the section 114 by screws 128. The shaft 126 carries another small gear 129 which meshes with a larger gear 130 having a hub portion 131 detachably secured to the upper portion of the work-engaging member by a pair of spaced pins 132 (only one shown in Fig. 13). With this arrangement, as relative rotational movement takes place between the head 110 and the work-engaging member 116, the movement of the gear 129 relative to the gear 130 transmits motion to the hand 123 through the gears 125 and 124. The dial 122 is provided with a scale (not shown) similar to the scale 99 (Fig. 7) calibrated, preferably, in terms of inch-pounds pressure, and by reading the extent of movement of the hand 123 relative to the dial scale, the operator may determine the amount of pressure applied.

The wrench structure shown in Fig. 12 is adapted particularly for measuring the pressure applied in tightening the work. To adapt the wrench for operation as a substantially rigid structure when loosening the work, I provide adjustable abutment screws 133 and 134 in the opposite side walls of the bottom head section 113, which screws are opposed to the abutment elements 119 and 120. The screws 133 and 134 may be adjusted into light engagement with the spring arms 117^a and 117^b, respectively, or they may be slightly spaced therefrom, as desired. In either event, they are locked in the desired position by the lock screws 135 and 136. The screws 133 and 134 may serve, when adjusted into contact with the spring arms 117^a, 117^b, as initial tension adjustment means. It will be seen that by setting up these screws against the spring arms to any desired extent, the initial tension of the spring arms may be increased so that a greater initial pressure will be required to deflect the same. This feature may serve for compensating purposes, as, for example, slight wear of the parts may take place over a long period of use and the gage mechanism may for this reason fail to register accurately. By setting up the screws 133 and 134, any out-of-register condition, and particularly an initial register condition, may be corrected. So far as the loosening action is concerned, it will be seen that when the wrench handles are moved in a counterclockwise direction, the head 110 and screws 133, 134 contact the spring arms 117^a, 117^b in close proximity to the work-engaging member 116 so that the loosening pressure may be applied through a substantially rigid series of connections. It will be understood that, so far as the foregoing tensioning feature is concerned, it may well be applied to any of the wrench forms disclosed herein.

In certain instances it may be desirable to employ wrenches having long handles, and where the work acted upon is at a considerable distance away from the operator so that he cannot readily observe the indicating mechanism when it is located as shown in the previous forms. To take care of this condition, in the use of my invention, I may employ the structure shown in Figs. 14 to 16, inclusive. This structure includes a head 140 and an elongated hollow handle 141. The head 140, the work-engaging member 142 and strip spring 143 of this form are substantially identical with the form of Fig. 8 and it will not, therefore, be necessary to describe these parts and their mountings in detail.

Relative rock movement between the head 140 and work-engaging member 142 is measured by an indicating unit 144 which is substantially the same as the indicating units of the forms of Figs. 8 and 13, except that this unit is located remotely from the work-engaging member 142 and in close proximity to a handle portion 145 that may be grasped by the operator. The unit 144 is provided with a tubular body portion 146 which receives the rear end of the forward handle portion 141 and the forward end of the rear handle portion 145, thereby coupling these handle portions together as a unit.

Relative rock movement of the parts is transmitted to the indicating unit 144 by transmission mechanism which will now be described. This transmission mechanism includes a flat arm 147 mounted within the head 140 and a shaft 148 connected to an indicator pinion 149 by a gear 150. The forward end of the arm 147 is fixedly secured to the work-engaging member 142 by screws or other suitable fastening devices 151. This arm extends rearwardly slightly past the rear end of the spring 143 and it is provided with a longitudinally extending elongated slot 152 in which is received an upstanding arm 153 on a head member 154 secured to the forwardly extending end of the shaft 148. The shaft is rotatably supported by suitable bearing members 156 mounted within the hollow handle portion 141.

In the use of this structure, as relative rock movement between the parts takes place, as for example when tightening the work, the movement of the head 140 and handle portions 141 and 145 causes a counterclockwise movement of the shaft 148 (as viewed from the front end of the wrench), in turn rotating the gears 150 and 149 so as to move the gage hand 157 in a clockwise direction. When the wrench is released and the parts are returned to normal position, the reverse movement of the parts takes place. Backlash in both of these movements is guarded against by a clock-type spring 158 (Fig. 16) having one end secured by a screw 159 to the bottom section of the wrench head, the same extending spirally around the shaft head 154 and being connected to such head as at 160. This spring tensions the movement of the shaft in such a way as to cause it to move with a smooth action, thereby insuring a more positive and accurate indication by the indicating unit.

In certain instances, I may employ a pair of separate, independently acting strip spring members for measuring the pressure applied in both tightening and loosening the work. Such an arrangement is shown in Figs. 17 and 18. Referring particularly to Fig. 17, the structure shown is similar to that of Figs. 1 and 2 except that the rear end of the work-engaging member arm 170 is shaped to provide a reduced tongue to which the forwardly extending ends of similar strip spring members 171 and 172 are secured in oppositely facing relation by rivets or other suitable fastening devices 173. The rear end portion of the head chamber 174 is provided with an upright post member 175 around which is disposed a sleeve unit 176 that provides a roller abutment mounting for the rear ends of the spring members 171 and 172. That is to say, the spring members 171 and 172 are long enough to extend rearwardly slightly past the roller unit 176, and they are spaced apart to such an extent that their adjacent faces snugly engage the roller unit 176. With this arrangement, as the work is tightened and the head 177 rotates relatively to the work-engaging arm 170, the spring member 172 is operative to yieldingly oppose this movement. When the work is loosened, the other spring member 171 becomes operative in opposing relative movement of the parts. Relative movement of the parts may be measured by any suitable indicating mechanism, such, for example, as any of those previously described. The indicating structure may include a rack member 178 engaged with a pinion 179 adapted to be carried by an indicating unit connected to an indicator of any suitable kind as, for example, the drum dial 63 of Fig. 2 or the gage hand 97 of Fig. 7.

My invention is also well adapted to an arrangement wherein the wrench head portion is adapted to be non-rotatably secured to the work, and the handle part which the operator grasps is, on the other hand, rotatable relative to the work. In Figs. 19 and 20 I show a wrench of this character which includes a chambered head 180 having, on the lower side of its forward end, a thickened boss portion 181 to the bottom of which is detachably secured, by screws or other fastening devices 182, a work-engaging adapter member 183. Within the chamber 184 of the head I rotatably or rockably mount a handle member 185. More particularly, the forward end of the handle 185 is detachably secured, by screws or the like 186, to a supporting member 187 having a depending stub shaft portion 188 rotatably mounted in an annular opening 189 formed in the inner wall of the thickened boss 181. An antifriction bearing member 190 is associated with the stub shaft 188 for a purpose which will be obvious.

The handle 185 extends throughout the head chamber 184 and projects rearwardly therebeyond through an elongated slot 191 formed in the rear end of the head 180. The outwardly projecting end of the handle is provided with a grip portion 192 which facilitates use of the structure.

Relative rotation or rock movement between the head 180 and handle 185 is yieldingly opposed by a strip spring member 193 carried by the head 180. To this end, spring supporting block members 194 and 195 are mounted within and adjacent the opposite ends of the head chamber 184 and they are provided with facing slots 196 and 197 in which the opposite ends of the strip spring member 193 are freely received. The opposite side walls of the slots are provided with abutment elements 198 which have substantially point-contact engagement with the adjacent surfaces of the strip spring 193, thereby minimizing frictional contact between these parts. The handle 185 is disposed above the spring 193 and it is provided, adjacent the mid portion of the spring 193, with laterally-spaced depending pins 199 which are adapted to engage the spring 193 on the opposite sides thereof. In this way, the tendency of the handle 185 to rotate relatively to the head is yieldingly opposed by the spring 193 but, when the work offers sufficient resistance to overcome the initial tension of such spring, the spring will be deflected and deflection will take place to an extent dependent upon the amount of pressure applied.

By measuring the extent of this deflection, I determine the amount of pressure, preferably inch-pounds, applied through the handle and spring to the work. The mechanism for measuring this deflection may take the form of indicating mechanism like that shown in Fig. 3, including a pinion 200 supported by a head-carried gage device 201 and a yieldable, shiftable rack member 202 carried by the handle 185. Other than above stated, the operation of this form of wrench is substantially the same as the forms previously described.

In taking care of various kinds of work, it is desirable to employ a ratchet form of wrench structure. My invention is well adapted to a wrench of that character, by so constructing the ratchet mechanism that wear thereof is minimized and any distortion thereof which would cause inaccurate reading of the gage structure is avoided. In Figs. 21 and 22, I have shown one form of torque measuring ratchet wrench in which the foregoing objectionable conditions are avoided, and which is adapted to operate with a ratchet action while, at the same time, measuring the force or torque applied in a highly efficient and accurate manner. More particularly, referring to Figs. 21 and 22, I employ a head part 210 which may be similar to the heads of the wrenches shown in Figs. 1 to 18, inclusive, and which is provided at its rear with a handle (not shown) adapted to be grasped by the operator. Within the wrench head chamber 211 I rotatably mount a work-engaging member 212 with which is associated ratchet mechanism. More particularly, the body and cover portions 210^a and 210^b of the wrench body, at the forward end thereof, are provided with aligned openings 213, 214 in which the opposite reduced end portions of the work-engaging member 212 are rotatably received. For friction-reducing purposes, the opposite ends of the work-engaging member 212 are engaged with the body by anti-friction bearing members 215 and 216. Upon the central and enlarged portion of the work-engaging member 212 I rotatably mount an arm 217 which may be constructed similarly to the arm shown in Figs. 2 and 3. The rear end of this arm is connected with a strip spring member (not shown) which is, in turn, connected with the body 210 in any of the ways shown in Figs. 1 to 18, inclusive, so that relative rotational or rock movement between the body 210 and the arm 217 is yieldingly opposed by said spring member.

The arm 217 is operably connected to the work-engaging member 212 by a ratchet mechanism which will now be described.

Similar ratchet wheels 218 and 219 are mounted upon the reduced end portions of the work-engaging member at the opposite ends of the enlarged central portion of such member. The ratchet wheels each have a polygonally shaped central opening and the portion of the work-engaging member engaged thereby may be complementally shaped so that the ratchet wheels are non-rotatably fixed upon the work-engaging member 212. The arrangement of these parts is such that when the body cover, the work-engaging member, arm 217 and ratchet wheels are assembled in the manner shown in Fig. 22 and they are secured in that position by one or more cover screws 220, the parts are operatively assembled so that the ratchet wheels rotate with the work-engaging member.

The ratchet mechanism further includes a pair of double pawl members 221, 222 carried by the arm 217, which serve to operatively connect such arm with the work-engaging member. More particularly, a shaft 223 is rotatably mounted in the arm 217 and has reduced end portions 223^a and 223^b projecting above and below such arm. Upon the reduced end portions 223^a and 223^b of the shaft 223, and in guide-abutment engagement with the upper and lower sides of the arm 217, I fixedly secure the pawl members 221 and 222. The end 223^a of the shaft 223 extends upwardly and through an elongated opening 224 in the head cover 210^b where it receives a finger-piece 225 which may be grasped and actuated to properly set the pawl members 221 and 222, as will be mentioned more particularly hereinafter.

Each pawl member 221, 222 has a pair of similar pawl elements 226^a and 226^b which project forwardly so that in certain adjusted positions thereof they will, respectively, engage the teeth of the ratchet wheels 218 and 219. The pawl members 221, 222 are moved simultaneously to similar extents by adjustment of the shaft 223 and when these members are rotated to the position shown in Fig. 1, the pawl element 226^b is thrown into engagement with the ratchet wheels. The pawl members are held in the position shown by the upper and lower laterally directed leaf spring members 227 which have V-shaped mid portions that are engaged by similarly-shaped projections 228 on the adjacent peripheral surfaces of the pawl members. Such spring members yieldably hold the pawl members in the position, for example, shown in Fig. 21; however, if it is desired to reverse the pawl action so that the pawl elements 226^a are operatively engaged with the ratchet wheels, it is only necessary to grasp the finger-piece 225 and rotate the same in counterclockwise direction (as viewed in Fig. 21) to snap the pawl member projections 228 on the side of the V-shaped spring portions opposite that shown in Fig. 21.

In the use of the ratchet structure shown, with the pawl element 226^b engaged with the ratchet wheel, the arm 217 and work-engaging member 212 are operatively connected as a rigid unit when the wrench is moved in a clockwise direction (as viewed in Fig. 21) to tighten the work. When the wrench is moved in the opposite direction, with the parts so set, the ratchet wheels 218 and 219 will remain stationary and the pawl elements 226^b, through the yielding connection afforded by the springs 227, will slip in counterclockwise direction over the teeth of the ratchet wheels. In this way, an ordinary ratchet action is accomplished in tightening or moving the work in a clockwise direction. The same operation takes place when the ratchet members 221, 222 are adjusted, as above stated, to operatively engage the pawl elements 226^a for operative action in the reverse direction. Other than above mentioned, the construction and operation of this form of wrench may be similar to any of the forms shown in Figs. 1 to 18, inclusive.

The wrench as shown in Figs. 2 and 22 may be connected to the work through a work-adapter member such as the member 230 shown in Fig. 23. To this end, the work-engaging member 231 is provided with a rectangular, or other noncircular opening, and the upper or inner end of the work-adapter member 230 is similarly shaped. This part of the member 230 may be provided with a spring and ball friction attachment 232 to prevent the adapter member from accidentally becoming detached. Such adapter may also be provided with stop lips or lugs 233 for preventing the adapter from being inserted too far within the work-engaging member opening. The lower projecting portion of the work-adapter member 230 may also be provided with a spring and ball attachment connection 234 so that a socket or other work-engaging element may be firmly held in place thereon.

At times, the operator may wish to rest his hand upon the forward part of the wrench to steady his movements in tightening the work. In that case, I may employ the hand-supporting structure shown in Fig. 23. Specifically, the upper end of the work-engaging member opening receives a hand supporting unit having a shank portion 235 constructed similarly to the upper or inward end of the work-adapter member 230. The shank portion 235 projects outwardly above the wrench structure as at 236 and is, preferably, of cylindrical shape for rotatable reception of the ball-like hand-grip member 237. The cylindrical extension 236, inwardly from the end thereof, is provided with a groove 238 for the reception of a stud 239 carried by the grip member 237, whereby the grip member is rotatably fixed against outward displacement upon the cylindrical extension 236. The extent of insertion of the shank 235 within the work-engaging member opening is limited by stop lugs or the like 240 similar to the stop lugs 233.

I believe that the operation and advantages of my invention as above first stated will be readily understood from the foregoing description. It is to be further understood that while I have shown and described several forms of wrenches embodying my invention, other changes in details and arrangements of parts may be resorted to without departing from the spirit and scope of my invention as defined by the claims that follow. For example, in a two-spring construction like that shown in Figs. 17 and 18, the springs may be fixedly carried in laterally spaced relation by the wrench head and their free ends may frictionally and freely engage the opposite sides of the end of an arm corresponding to the arm 170 (Fig. 17). Also, this same arrangement may be employed where a single strip spring member is used; in which case, the rear end of the strip spring member would be fixedly carried by the wrench head and its other or forward end would be freely and frictionally engaged with the rear end of the work-engaging member arm. In other words, the connections of the spring 44 shown in Figs. 2 and 3 may be reversed so that the spring is fixedly connected at one end to the head instead of to the work-engaging member arm.

I claim:

1. A torque measuring wrench comprising a head member having a chamber therein, a work-engaging member rockably mounted in said chamber and having an exposed part adapted for engagement with the work, a normally straight and stiff strip spring member mounted in said chamber and having one end connected to said work-engaging member, means mounted in said chamber having slidable engagement with opposite side portions of said spring member and connecting the other end of said spring member with said head member so that right and left hand threaded work may be tightened, pressure indicating means, and means between said indicating means and said work-engaging member for actuating the former as said head and work-engaging members rock relatively.

2. A torque measuring wrench comprising a head member, a work-engaging member rockably supported thereby, a strip spring member, means for connecting one end of said spring member to said work-engaging member, a support for the other end of said spring member having a swivel connection with said head member to accommodate flexing action and reciprocation of said spring member as said head and work-engaging members are rocked relatively, and means for indicating the pressure applied to the work through said members.

3. A torque measuring wrench comprising a head member, a work-engaging member rockably supported thereby, a strip spring member, means for rigidly connecting one end of said spring member to said work-engaging member, a roller support for the other end of said spring member having a swivel connection with said head member to accommodate flexing action of said spring member as said head and work-engaging members are rocked relatively, and means for indicating the pressure applied to the work through said members.

4. A torque measuring wrench adapted for use with means for indicating the force applied by the wrench to the work comprising a head member, a work-engaging member rockably supported thereby, a strip spring member, means for connecting one end of said strip member to said work-engaging member, and abutment connection means between the other end of said spring member and said head member, including a pair of rollers between which said other end of said spring member is received, means supporting said roller members as a unit and for rotatively connecting such unit to said head member.

5. A torque measuring wrench comprising a head member, a work-engaging member rockably supported thereby, a strip spring member, means for connecting one end of said spring member to said work-engaging member, a pivotal support for the other end of said spring member carried by said head member, said support confining said end of said spring member against lateral displacement, and means for indicating pressure applied to the work by registering the extent of relative rock movement of said head and work-engaging members.

6. A torque measuring wrench comprising a head member, a work-engaging member rockably supported thereby, a strip spring member, means for connecting one end of said spring member to said work-engaging member, an abutment roller support for the other end of said spring member, comprising a pair of spaced roller members carried by said head member and between which the adjacent end of said spring member is freely received, and means for indicating pressure applied to the work by registering extent of relative rock movement of said head and work-engaging members.

7. A torque measuring wrench comprising a head member having a chamber therein, a work-engaging member rockably mounted in one end of said chamber and having an arm extending rearwardly toward the other end of said chamber, the rock axis of said work-engaging member coinciding with the axis of rotation of the work, a normally straight spring bar rigidly connected at one end to and extending lineally from the rear end of said arm and connected at its other end to said head member to yieldably oppose relative rock movement between said head and work-engaging member, and indicating means associated with said arm and head member and operated by said arm for registering the extent of relative rock movement between said head and work-engaging members.

8. A torque measuring wrench comprising a head member, a work-engaging member rockably connected thereto, a long normally straight spring bar connected at one end to said work-engaging member, means engaging opposite sides of said spring bar and connecting its other end to said head member, whereby said spring bar yieldably opposes relative rock movement of said members in opposite directions, stop means for limiting the extent of relative rock movement between said head and work-engaging members and also the extent of deflection of said spring bar, and indicating means for registering the extent of said relative rock movement.

9. A wrench for applying torque in opposite directions comprising a head member, a work-engaging member rockably connected thereto; a long and normally straight spring bar, means rigidly connecting one end of said spring bar to one of said members, adjustable abutment means carried by the other of said members and engaging opposite side portions of said spring bar and operatively connecting said spring bar with said other member, and indicating means for registering the extent of relative rock movement between said head and work-engaging members in either direction.

10. A torque measuring wrench comprising a head member having provision for operably engaging it with the work, a handle member rockably connected to said head member, a strip spring member carried by said head member in such a manner that its mid portion is free to flex, and means operably connecting said handle member to said midportion so that said spring member yieldably opposes relative rock movement between said head and handle members.

11. A torque measuring wrench comprising a hollow head member having an elongated slot in its rear wall and also having provision for operably engaging it with the work, a handle

member projecting through said slot into said head member, means in said head member whereby said handle member is rockably connected to said head member, a strip spring member carried within said head member in such a manner that its midportion is free to flex, means within said head member operably connecting said handle member to said midportion so that said spring member yieldably opposes relative rock movement between said head and handle members, and means indicating extent of relative rock movement of said head and handle members.

12. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member having a grip portion adjacent one end thereof, a work-engaging member pivotally connected with the other end of said handle member, said work engaging member having means through which it may be connected with the work, which means is located substantially on the pivotal axis of said work-engaging member, and a normally straight spring bar carried by said work-engaging member, and extending away from and in substantially radial alignment with the said work-engaging member, said spring bar being positioned between the axis of said pivot and said grip portion, said handle member having means engaging said spring bar at a predetermined distance from the axis of rotation of said work-engaging means and at a point between said work-engaging means and said grip portion to provide a substantially constant moment arm, whereby when a rotary force is applied to said grip member the same will be transmitted through said handle member to said spring bar and through said spring bar to said work-engaging member.

13. A torque measuring wrench adapted for use with means for indicating the force applied to the work, which comprises a handle member having a grip portion on one end thereof, a work-engaging member having an element thereon which is adapted to be connected to the work, said work-engaging member having a portion pivotally connected to the other end of said handle member, substantially on the axis of said work-engaging element, a spring bar supported by one of said members in end to end alignment with said pivotally connected portion and said grip portion, which said spring bar is held against longitudinal displacement relative to said one member, a connection between the other of said members and said spring bar, said connection permitting slight longitudinal displacement of said spring bar, whereby relative rotation between said members causes deflection of said spring bar and there is provided a constant moment arm through which force is applied from said grip portion through said handle member, thence through said spring bar, and finally through said work-engaging member to the work.

14. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member having a longitudinally extending grip portion adjacent one end thereof, a work engaging member pivotally supported adjacent the other end of said handle, the pivotal axis of said work-engaging member coinciding with the axis of rotation of the work, a normally straight spring bar disposed in radially aligned end to end relation to said grip portion and said work engaging member, said spring bar having one end connected to said work engaging member with its other end slidably connected with said handle member at a point radially inwardly of said grip portion, whereby there is provided a constant moment arm and pressure applied to said grip portion is transmitted to the work through said handle member, thence forwardly through said spring bar and finally through said work engaging member.

15. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member having a longitudinally extending grip portion adjacent one end thereof, a work engaging member pivotally supported adjacent the other end of said handle, the pivotal axis of said work-engaging member coinciding with the axis of rotation of the work, a normally straight spring bar disposed in radially aligned end to end relation to said grip portion and said work engaging member, said spring bar having one end thereof fixably connected to one of said members and its other end engaged with the other of said members, whereby there is provided a constant moment arm and pressure applied to said grip portion is transmitted to the work through said handle member, thence forwardly through said spring bar and finally through said work engaging member.

16. A torque measuring wrench which comprises a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, the pivotal axis of said work-engaging member coinciding with the axis of rotation of the work, an arm on said work-engaging member and extending longitudinally of said handle member, a spring bar having one end carried by said arm and extending longitudinally along said handle member, said arm and spring bar constituting a continuous moment arm of substantially constant length, means for connecting the other end of said spring bar with said handle member, means for registering deflection of said spring bar to indicate force applied to the work including relatively movable elements, and means carried by said moment arm and adapted to cooperate with one of said relatively movable elements of said indicating means to operate the latter.

17. A torque measuring wrench which comprises, a handle member having a grip portion, a work-engaging member pivotally supported adjacent one end of said handle, the pivotal axis of said work-engaging member coinciding with the axis of rotation of the work, an arm member on said work-engaging member and extending longitudinally of said handle member, a spring bar extending from said arm longitudinally of said handle member and having one end connected to said arm and its other end engaged with said handle member, said arm and said spring bar providing a continuous constant moment arm of substantially constant length, whereby pressure applied to said grip portion is transmitted to the work through said handle member, thence through said spring bar and finally through said work-engaging member, and means for indicating the amount of pressure applied to the work by measuring the extent of relative rock movement between said handle member and said arm, said means comprising an operating part extending from said pressure indicating means and a second part on the work-engaging member co-

operable with the first part to actuate said indicating means.

18. A torque measuring wrench comprising, a head member, a work-engaging member rockably supported thereby, a spring bar, means fixably connecting one end of said spring bar to one of said members, means on the other of said members pivotally supporting the other end of said spring bar and confining it against lateral displacement, and means for indicating the pressure applied to the work by registering the extent of relative rock movement of said head and said work-engaging members.

19. A torque measuring wrench adapted for use with means for indicating the force applied by the wrench to the work comprising a head member having provision for operably engaging it with the work, a handle member rockably connected to said head member, a spring bar carried by one of said members and so mounted that its end portions are retained against lateral displacement and its mid portion is free to flex, and means operably connecting the other of said members to said mid portion so that the spring member yieldably opposes relative rock movement between said head and handle members.

20. A torque measuring wrench adapted for use with means for indicating the force applied by the wrench to the work comprising a head member having provision for operably engaging it with the work, a handle member rockably connected to said head member, a spring bar supported wholly by one of said members, and abutment means carried by the other of said members and adapted to engage said spring bar intermediate its ends so that pressure applied to said spring bar by one member is transmitted through said spring bar to the work-engaging member and the work.

21. A torque measuring wrench adapted for use with means for indicating the force applied by the wrench to the work comprising a head member having provision for operably engaging it with the work, a handle member rockably connected to said head member, a spring bar carried wholly by said head member and having its opposite ends retained against lateral movement with its mid portion free to flex, and means for operably connecting said handle member to said mid portion so that said spring bar yieldably opposes relative rock movement between said head and handle members.

22. A torque measuring wrench adapted for use with means for indicating the force applied by the wrench to the work comprising a head member having top and bottom walls, a work-engaging member rotatably mounted in the top and bottom walls of said head member, a spring bar having one end secured to said work-engaging member, and a connection between the other end of said spring bar and said head member whereby said spring bar opposes relative movement of said members, said connection including a bar-supporting member having an opening therein in which the end of said spring bar is freely received, said head member having aligned openings in the top and bottom walls thereof with their axes extending substantially parallel with the axis of rotation of said work-engaging member, and a pair of oppositely extending bearing members on said supporting members and extending at substantially right angles to said bar-receiving opening, said bearing members being rotatably received in said head member openings.

23. A torque measuring wrench comprising a head member including a grip portion, a work-engaging member rockably connected thereto, an elongated normally straight spring bar having its active flexing part disposed wholly between said rockable connection and said grip portion, means rigidly connecting one end of said spring bar to said work-engaging member, means providing a longitudinally slidable connection between said spring bar and said head member, said connection confining said spring bar against movement in either direction relative to said head member and in a plane at right angles to the rock axis of said rockably connected members so that said work-engaging member can be utilized to tighten left or right hand threaded work pieces, and means indicating the amount of pressure applied to the work by measuring the extent of relative rock movement between said head and work-engaging members.

24. A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted in said head member and having a part exteriorly accessible for connection with the work, a rigid arm on said work-engaging member and having a longitudinal opening of predetermined cross-sectional size and length extending from its outer end toward the axis of rotation of said work-engaging member, an elongated spring bar of substantially uniform cross section throughout its length having one end securely mounted in and extending substantially to the rear end of said arm opening, a second connection between the other end of said spring bar and said head member, and means for connecting said work-engaging member with a pressure indicating mechanism responsive to relative movement of said head and work-engaging members.

25. A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted in said head member and having a part exteriorly accessible for connection with the work, a rigid arm integrally extending from said work-engaging member and having an opening of predetermined cross-sectional size and length in its outer end and extending toward the axis of rotation of said work-engaging member on a line passing through said axis at substantially right angles thereto, an elongated straight spring bar of substantially uniform cross section throughout having one end extending into said arm opening substantially the full length of the latter, a connection between the other end of said spring bar and said head member, whereby said spring bar yieldably opposes relative movement between said members, and pressure indicating mechanism for measuring the extent of relative movement between said members in terms of pressure applied to the work.

26. A torque measuring wrench comprising an elongated head member having top and bottom walls, said head member having aligned circular openings at the forward end thereof in said top and bottom walls, aligned circular openings at the rear end thereof in said top and bottom walls and an intermediate opening in said top wall, a work-engaging member having parts rotatably mounted in said forward openings, a spring bar connected at one end to said work-engaging member, a connection between the other end of said bar and said head member including a member having parts rotatably mounted in said rear openings, indicating mechanism

having a part fitting in said intermediate opening, operating means carried by said part and extending into said head member, and means carried by said work-engaging member and adapted to be operably engaged with said operating means merely by axial insertion of said mechanism part in said intermediate opening.

27. A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted in said head member and having a part exteriorly accessible for connection with the work, a rigid element on said work-engaging member and having a longitudinal opening of predetermined cross-sectional size and length extending from its outer end toward the axis of rotation of said work-engaging member, an elongated spring bar of substantially uniform cross section throughout its length having one end securely mounted in and extending substantially to the rear end of said element opening, a second connection between the other end of said spring bar and said head member, and means for connecting said work-engaging member with a pressure indicating mechanism responsive to relative movement of said head and work-engaging members.

28. A torque measuring wrench comprising a head member, a work-engaging member rotatably mounted with respect to said head member and having a portion provided with an opening, said opening extending in a direction transverse to the axis of rotation of said work-engaging member and lying across said axis, an elongated flexible spring bar having one end thereof securely mounted in said opening and having its opposite end connected to said head member for yieldably opposing relative rotary movement of said head member and work-engaging member, and indicating means operable by said work-engaging member as said head member and work-engaging member rotate relative to each other for indicating the force applied to the work through said members and spring bar.

29. A torque wrench comprising a body member, a head member rotatably carried by said body member, a torque resisting beam carried at one end by one of said members, means providing a pivotal connection between the other end of said beam and the other of said members, indicating means, and means for connecting one end portion of said beam with said indicating means.

30. A torque measuring wrench adapted to tighten work having right or left hand threads comprising, a head member, a work-engaging member rockably supported thereby, a spring bar, means fixably connecting one end of said spring bar to one of said members, means on the other of said members slidably receiving the other end of said spring bar and confining it against lateral displacement in opposite directions, and means for indicating the pressure applied to the work by registering the extent of relative rock movement of said head and said work-engaging members.

31. A wrench adapted to tighten work having right or left hand threads comprising, a head member, a work-engaging member rockably supported thereby, a spring bar, means fixably connecting one end portion of said spring bar to one of said members, abutment means on the other of said members engaging the other end portion of said spring bar and confining it against lateral displacement in opposite directions while permitting free relative longitudinal movement thereof, and means for indicating the force applied to the work by registering the extent of relative rock movement of said head and said work-engaging members.

32. A torque measuring wrench comprising, a handle member, a work-engaging member rockably supported thereby, an arm extending substantially radially from said work-engaging member, a spring bar, means fixably connecting one end of said spring bar to said arm, means on said handle member pivotally supporting the other end of said spring bar and confining it against lateral displacement, and means for indicating the pressure applied to the work by registering the extent of relative rock movement of said head and said work-engaging members.

33. A torque measuring wrench comprising, a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, a normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end arranged to have a force applied thereto through said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

34. A torque measuring wrench comprising, a handle member, a work-engaging member pivotally supported adjacent one end of said handle member, a normally straight spring bar yieldably opposing relative rock movement of said work-engaging member and said handle member, said spring bar having one end thereof fixedly mounted in said work-engaging member and extending across the axis of rotation of said work-engaging member and having its opposite end pivotally connected with said handle member, and means responsive to flexing of said spring bar and consequent relative rock movement of said work-engaging and handle members for indicating the force applied to the work.

35. A torque measuring wrench comprising, a handle member having a grip portion on one end thereof, a work-engaging member rockably supported by the other end of said handle member, a rigid work-engaging element rigidly connected to said work-engaging member to maintain a constant relationship between the axis of rotation of the work and the axis of rotation of said handle member relative to said work-engaging member, a normally straight spring bar member rigidly connected at one end to said work-engaging member and extending toward said grip portion so that its entire active flexing portion is disposed wholly between the axis of rotation of said work-engaging member and said grip portion in general longitudinal alignment with said work-engaging member and said grip portion, means operably connecting the other end of said spring bar member to said handle member so that pressure is applied to the work directly through said handle member, spring bar member, work-engaging member and work-engaging element in the order named, whereby the leverage between the work and said spring bar member is maintained constant, indicating means carried by one of said members and including relatively movable elements, and means for connecting one of said relatively movable elements

of said indicating means to one of the other of said members whereby it is actuated to indicate pressure applied to said handle member and, in turn, the work through said grip portion without exerting through said indicating means the pressure applied to the work, the arrangement being such that said indicating means indicates pressure applied at all points within the flexing range of said spring bar member.

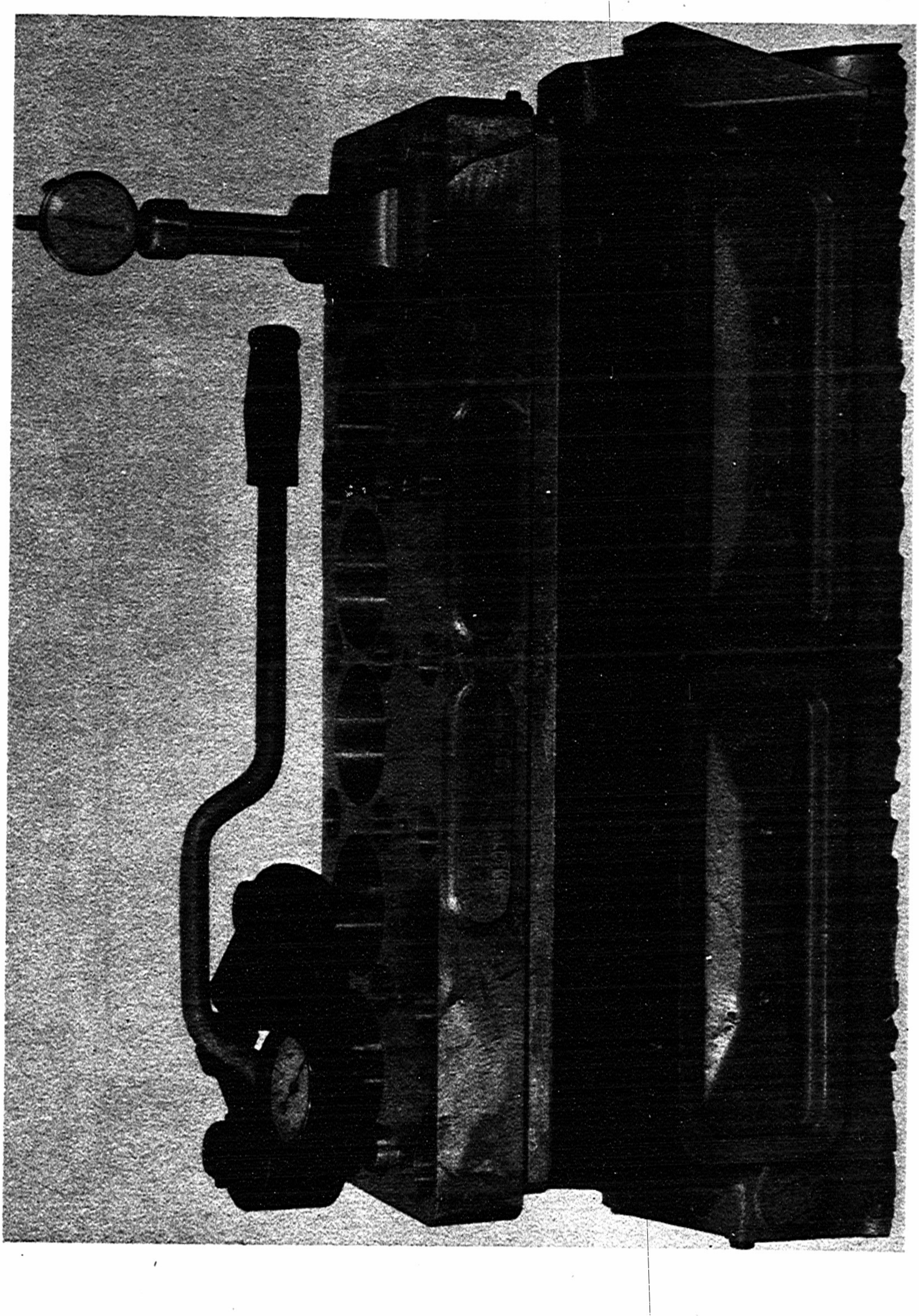
36. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises a handle member having a grip portion, a work-engaging member having a portion pivotally supported adjacent one end of said handle, means coaxial with the axis of said pivotally supported portion by which said work-engaging member may be connected with the work, an arm member on said work-engaging member and extending longitudinally of said handle member, a normally straight, stiff spring bar extending from said arm longitudinally of said handle member in substantially radial relation to the axis of rotation of the pivoted portion of said work-engaging member and having one end connected to said arm and its other end engaged with said handle member at a predetermined distance from the axis of rotation of the pivoted portion of said work-engaging member and at a point between said grip portion and said axis, said arm and said spring bar providing a continuous constant moment arm of substantially constant length, whereby pressure applied to said grip portion is transmitted to the work through said handle member, thence through the spring bar and finally through said pivoted portion of said work-engaging member.

37. A torque measuring wrench adapted for use with means for indicating the force applied to the work which comprises, a handle member extending substantially throughout the length of the wrench and having a grip portion adjacent one end thereof, a work-engaging member having a portion pivotally supported adjacent the other end of said handle member and another portion located on the axis of the first portion and adapted for connection of the work-engaging member with the work, a normally straight spring bar disposed in end to end relation to said grip portion and the pivoted portion of said work-engaging member with its longitudinal axis extending substantially radially relative to the axis of the pivoted portion of said work-engaging member, said spring bar having one end fixedly mounted in said work-engaging member substantially at the pivotal axis thereof with its other end in slidable engagement with said handle member at a point between said axis of the pivoted portion of said work-engaging member and said grip portion and at a predetermined and substantially constant distance from the axis of the pivoted portion of said work-engaging member, whereby pressure applied to said grip portion is transmitted directly through said handle member, thence forwardly through said spring bar from one end thereof to the other, thence to the pivoted portion of said work-engaging member and to the work, through a constant moment arm effective to rotate the work notwithstanding the position at which pressure is applied to said grip portion.

38. A torque wrench comprising: a handle member including an elongated body member having a chamber extending throughout substantially the full length of the body member and a longitudinally extending grip portion carried by said body member; an indicator carried by said handle member, said indicator being located at a point between the ends of said chamber; a work-engaging member having an enlarged portion in said chamber and a relatively smaller portion extending from said enlarged portion to the exterior of said chamber and adapted to be operatively connected with the work; means connecting said enlarged portion of said work-engaging member to said handle member, whereby force applied to said handle member is transmitted to said work-engaging member through said connecting means, the enlarged portion of said work-engaging member being arranged so that it can turn relative to said handle member in proportion to the force applied to the work; an elongated arm means in said chamber, one end of said elongated arm means being fixedly secured to the enlarged portion of said work-engaging member and extending radially from said enlarged portion and lengthwise of said chamber toward said grip portion, the opposite end of said elongated arm means being free to move upon turning of said enlarged portion of said work-engaging member relative to said handle member; and means operatively connecting said free end of said elongated arm means to said indicator to actuate said indicator upon movement of said free end of said elongated arm means.

HERMAN W. ZIMMERMAN.

Plaintiff's Exhibit No. 9



Plaintiff's Exhibit No. 13.

Sept. 25, 1945. P. A. STURTEVANT **2,385,591**

FORCE TRANSMITTING MEASURING MECHANISM

Filed July 17, 1944 3 Sheets-Sheet 1

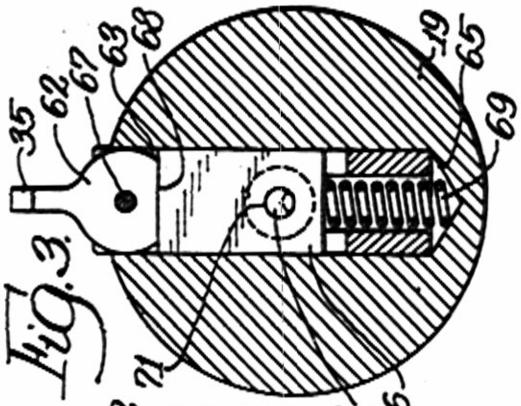


Fig. 3.

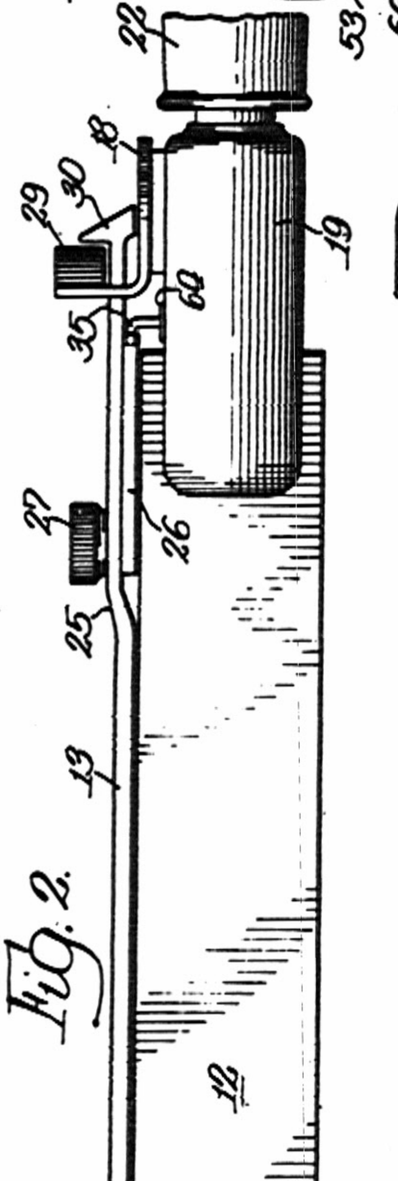


Fig. 2.

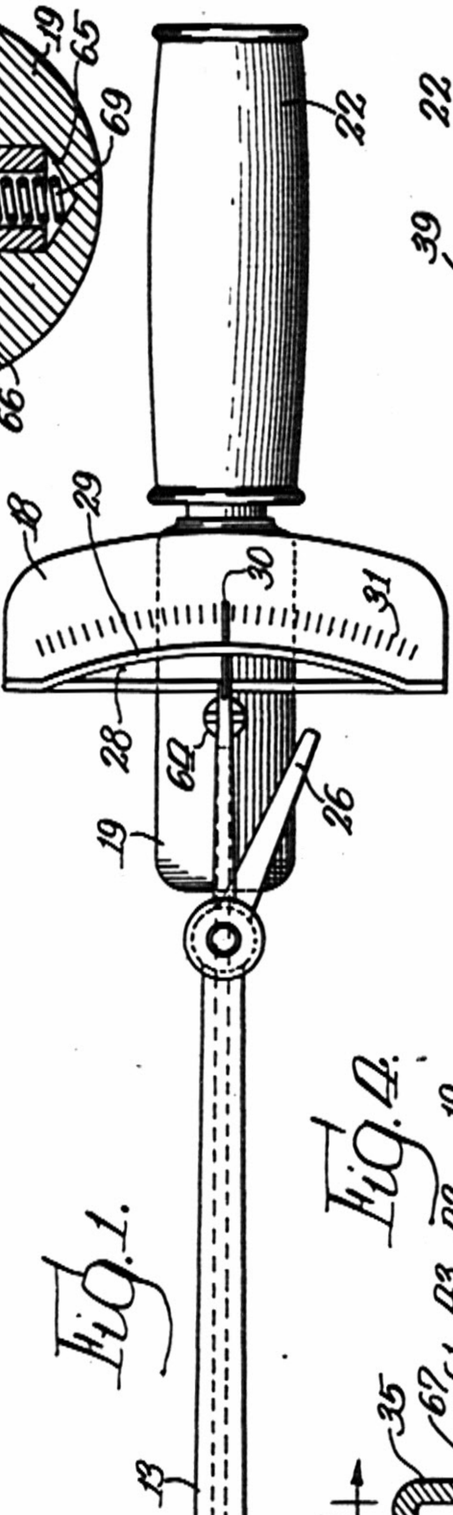


Fig. 1.

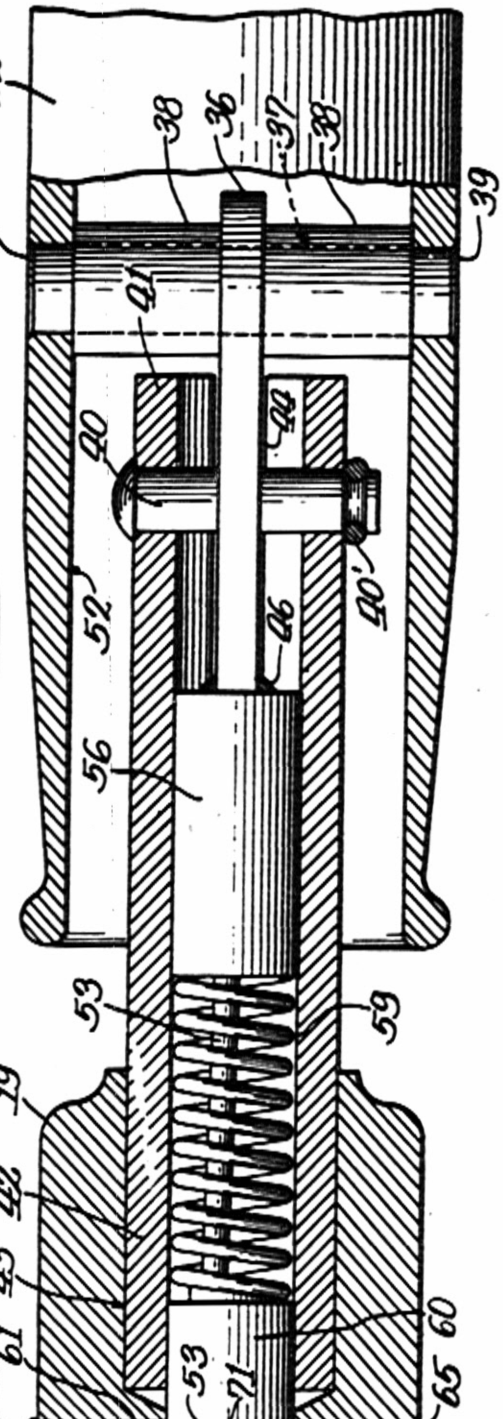


Fig. 4.

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FORCE TRANSMITTING MEASURING MECHANISM

Filed July 17, 1944 3 Sheets-Sheet 2

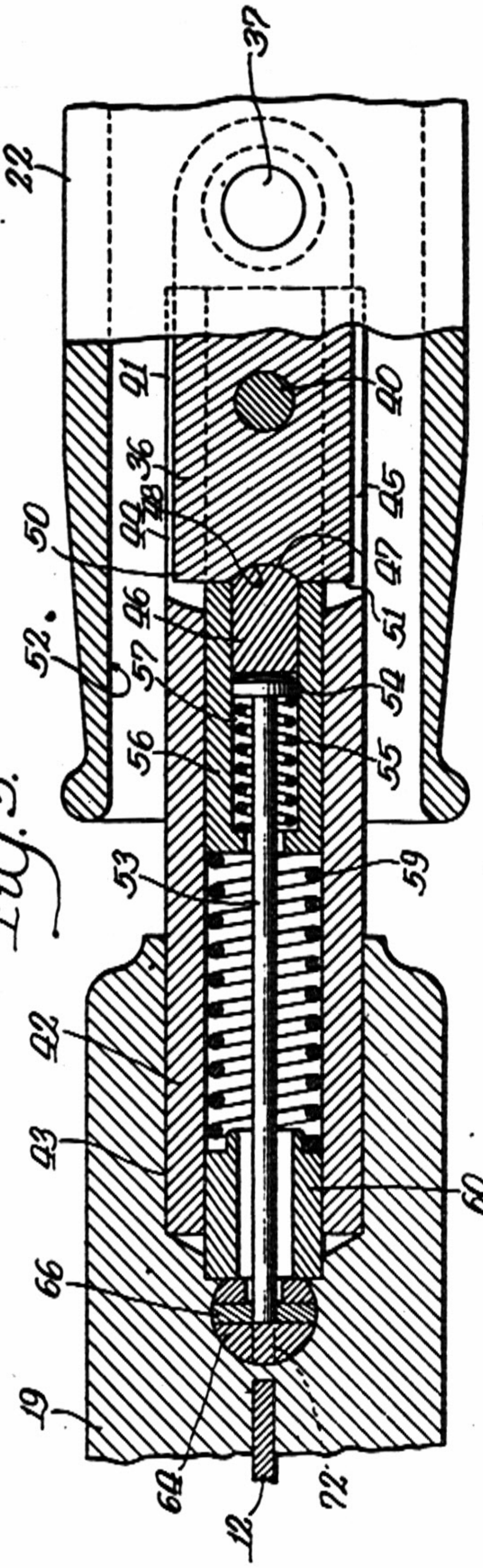

Fig. 5.

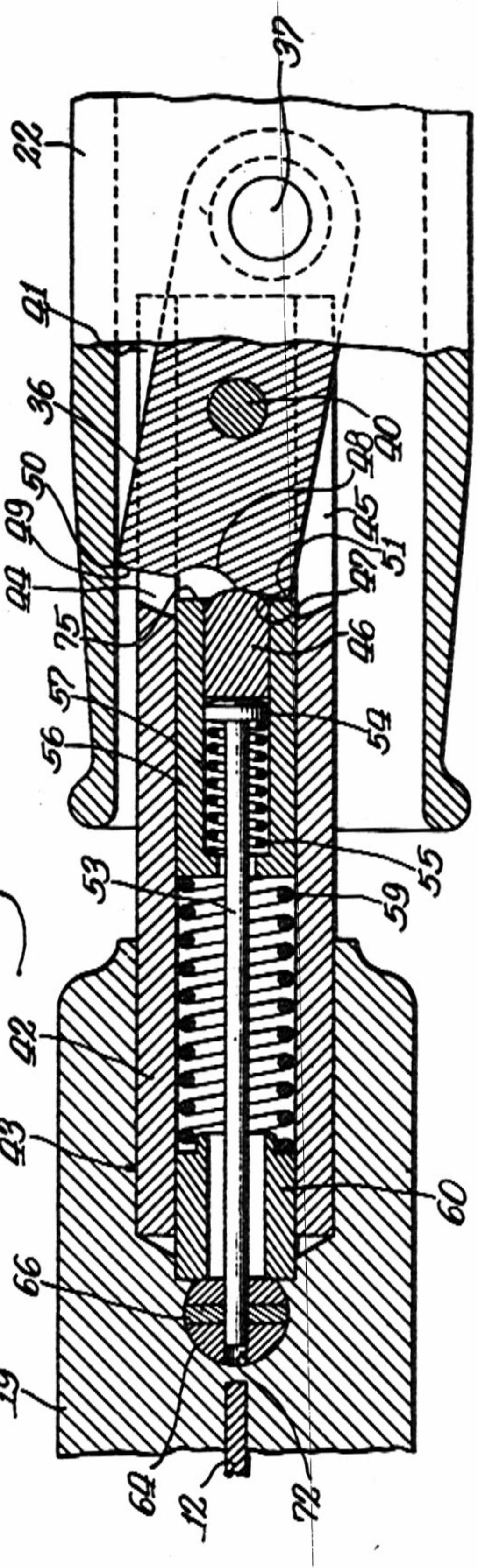

Fig. 6.

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FORCE TRANSMITTING MEASURING MECHANISM

Filed July 17, 1944 3 Sheets-Sheet 3

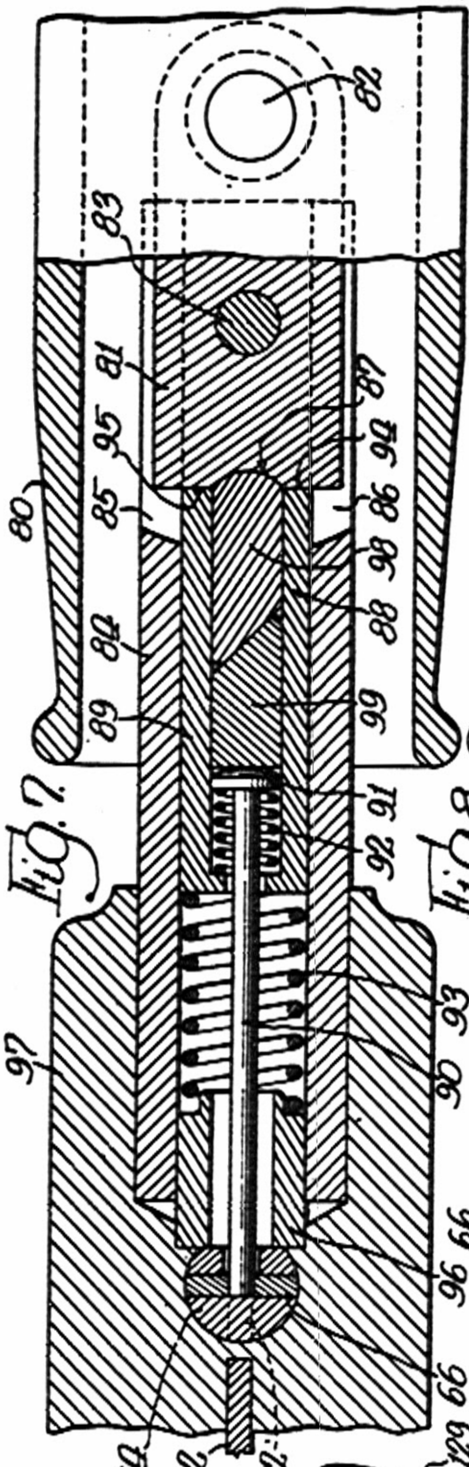
Fig. 7.

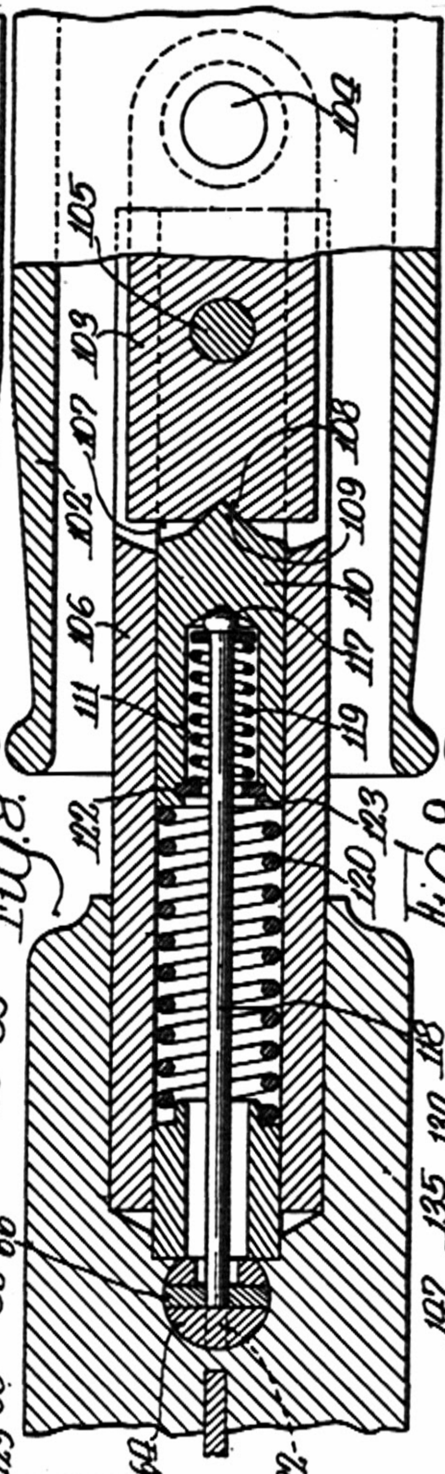
Fig. 8.

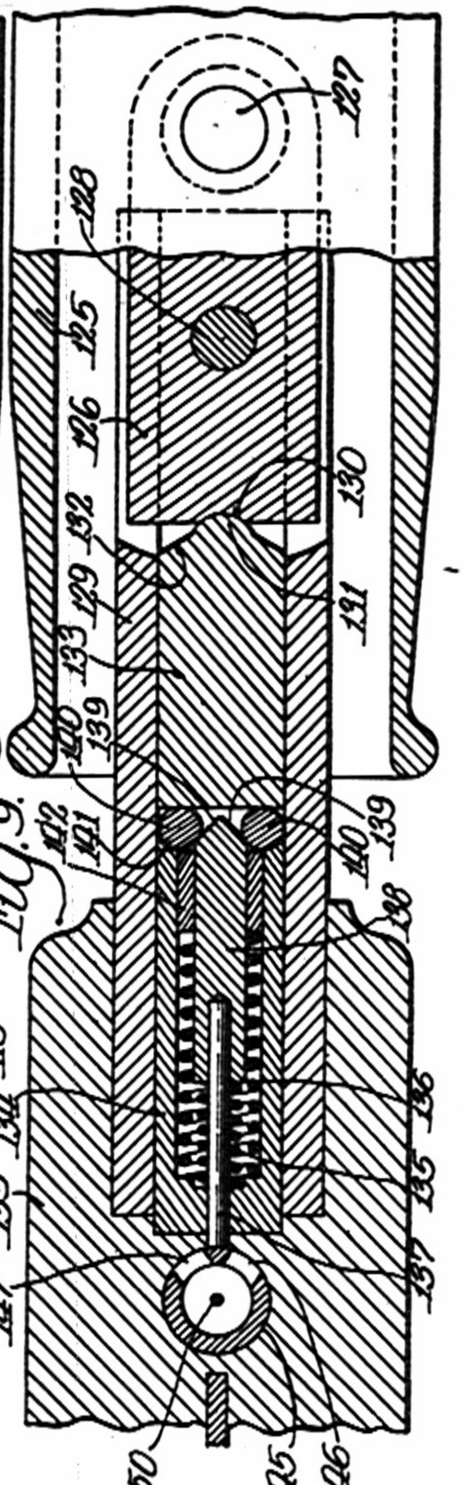
Fig. 9.

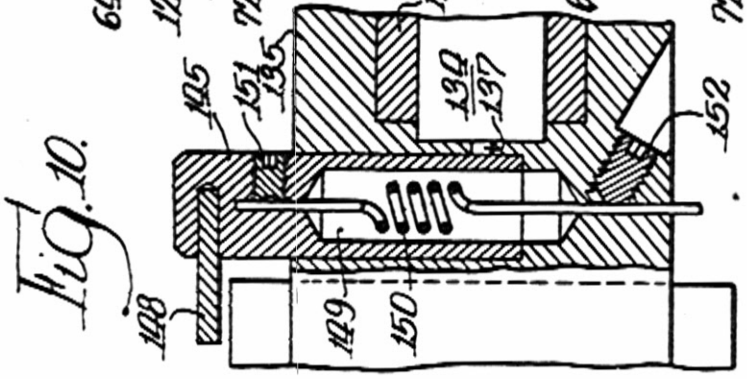
Fig. 10.

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UNITED STATES PATENT OFFICE

2,385,591

FORCE TRANSMITTING MEASURING MECHANISM

Paul A. Sturtevant, Elmhurst, Ill.

Application July 17, 1944, Serial No. 545,333

26 Claims. (Cl. 73—139)

This invention relates to force transmitting mechanism and more particularly to a mechanism of this type employing a force applying member.

When applied to mechanism of this type, the invention broadly has to do with a force limiting structure employing two relatively movable parts and a normally rigid connection between the two parts for transmitting the force applied, there being means to release the connection and to utilize this force to create a hammer blow against the structure in order to indicate the application of a predetermined force at the work.

In this connection, the invention has for its object the creation of a hammer blow substantially equal to the force being imparted whereby a definite signal is produced by this hammer blow and the parts are automatically resettable for subsequent operation when the force being applied is released.

While the invention has application broadly to a force transmitting mechanism for limiting the force being applied, it is uniquely adaptable to a structure of the type for measuring torque employing a torque measuring device operatively disposed relative to a work-engaging member and to a force applying member.

The invention may be specifically applied to a torque measuring wrench having a work-engaging member, a head member and a spring operatively disposed relative to the same so that when the handle is grasped and rotated in an arc in either direction, the force applied at the handle is transmitted to the work. As the resistance of the work causes the spring to flex, the head member and the handle rotate relative to the work-engaging member. The force applied at the handle continues to move the head and handle in an arc with the work-engaging member as a pivot as the work is tightened. This rotary or pivotal movement between the head member and the work-engaging member may be measured at a dial by a pointer. The reading of the dial correctly represents, in the construction of the wrench disclosed herein, the force or torque applied by the work-engaging member to the work.

In practice, the purpose of a torque measuring wrench to apply a predetermined torque to nuts, bolts, studs or the like and to secure thereby uniform tightening has often failed due to the carelessness of the operator and to the use of the wrench in locations making the reading of its dial difficult. In an effort to overcome these difficulties, provisions have been made to warn the operator by visible and audible signals upon the application of a predetermined torque at the work-engaging member. Aside from giving a signal, prior art suggestions of this kind have been ineffective to accomplish the result intended due to the fact that the structures used permitted the attendant to disregard the signal and continue to apply a force at the handle member. These structures usually required electrical energization so that electric cords running to the wrench were necessary. The running of electric cords to a torque wrench has always been objectionable because these cords limit the maneuverability of the wrench in close spaces and quickly wear, the result being that the cords were soon disconnected and discarded. On the other hand, the character of the structure resulted in a weak and ineffective signal, which, if audible could not be readily heard in a factory, and, if visible, could not always be seen when the wrench would be used. Power operated devices, as distinguished from manually operable devices, have suggested the employment of means to disconnect the driving power from the work-engaging member when a predetermined torque is applied and to rely upon a vibration or clicking of the parts to indicate to the operator that the power is disconnected. The arrangement of the parts did not effectively accomplish the result desired because the continued operation of the power unit would detract from the clicking which was remotely disposed from the handle and would permit the operator to keep the device nosed against the work and apply excessive force to overcome the disconnection. Under no circumstances was this arrangement adaptable to a torque transmitting device employing a handle because the application of power was beyond and not through the handle, the latter merely being used to guide the device in its use.

An object of the invention is to provide, therefore, in a torque measuring wrench or in any force transmitting mechanism, a new and novel means preferably forming a part of a connection transmitting the force to the work-engaging member and including a releasable part adapted to impart a hammer blow to indicate the application of a predetermined torque at the work-engaging member.

A further object of the invention is to provide in a device of the type described an improved form of connection between what may be termed the handle and the head member whereby a normally rigid connection is provided to transmit the force applied at the handle by the operator until a predetermined torque is applied at the work-engaging member whereupon the connection is momentarily broken and the force is utilized to create a hammer blow capable of being equal to the force being applied to the handle.

A still further object of the invention is to provide a structure of the foregoing type adapted effectively to indicate by a hammer blow that a predetermined torque has been applied to the work-engaging member. The operator cannot disregard, therefore, the setting of the wrench and will not carelessly continue applying force at the handle in excess of the setting on the wrench. Moreover, the wrench may be used in any position or location and a reading of the dial or gauge will not be necessary in order to determine the force applied. A structure embodying the invention effectively jars the operator at the handle by the hammer blow and avoids continuing the application of force through the handle.

A still further object of the invention is to provide a structure of the foregoing type employing a novel form of connection between the handle member and the head member, this connection including preferably a part normally held against relative movement with the head member to form a rigid connection therewith but releasable by a trigger device requiring for operation but a negligible part of the force imparted to the handle whereby the rigid connection may be momentarily broken and the part caused to move relative to the head member and impart a hammer blow equal to the force applied to the handle.

The invention in its more specific aspects may include a trigger device operable by the indicating means registering the torque applied at the work-engaging member, which trigger device is adapted normally to maintain a rigid connection at the head member to transmit the force applied at the handle, but, when actuated by the indicating means, to break the rigid connection so that the force applied at the handle by the operator is then utilized to create a hammer blow against the handle. The trigger device is designed to require little force to operate the same and to be quickly resettable automatically so as to restore the rigid connection when the force is released from the handle.

A further novel feature of this invention is that any wearing of the parts of the connection, including the releasable member, will not affect the operation of the torque wrench. The flexing of the spring bar and the action of the indicating mechanism to indicate the extent of such flexing are independent in their operation of any frictional influence resulting from such wearing of the parts. Moreover, the time of the trip releasing the connection will not be affected by such friction inasmuch as the trip finger is set in relation to the visual reading at the dial.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawings which form a part hereof.

In the drawings:

Figure 1 is a top elevational view of a torque measuring wrench embodying the invention;

Fig. 2 is a side view of the wrench with a portion of the handle broken away;

Fig. 3 is a transverse view of the trigger device taken along line 3—3 of Fig. 4;

Fig. 4 is an enlarged vertical section of that portion of the wrench which embodies the structure of the invention disclosed;

Fig. 5 is a similar but horizontal section of the same structure, the releasable part being shown in a non-movable position with the head member and forming a part of the rigid connection transmitting the force applied at the handle member;

Fig. 6 is the same sectional view but showing the releasable part tripped and striking the handle member to produce a hammer blow thereat;

Fig. 7 is a view similar to Fig. 5, but illustrating a slightly modified structure;

Fig. 8 is likewise a view similar to Fig. 5, but illustrating another modified structure;

Fig. 9 is a similar view, but illustrating a still further modified structure; and

Fig. 10 is a transverse section through a modified form of trigger device shown in Fig. 9.

The wrench illustrated in Figs. 1 to 6, inclusive, includes a work-engaging member 10, a head member 19 and a handle 22. A flat spring bar 12 is so disposed with respect to the work-engaging member 10 and the head 19 that when the handle 22 is grasped and rotated in an arc in either direction, the pressure applied is transmitted through head 19, spring 12 and the work-engaging member 10 to the work. As the resistance of the work causes the spring bar 12 to flex, head 19 and handle 22 will rotate relative to the work-engaging member 10. The force applied to the handle 22 will continue to move the handle in an arc with the work-engaging member 10 as a pivot as the work is tightened. This rotary or pivotal movement between the handle 22 and the work-engaging member 10 is measured at a dial 18 mounted upon head 19 by a pointer 13 secured to the work-engaging member 10.

It will be observed that in the type of wrench disclosed, applicant provides two relatively movable members which are so arranged that one of them operatively engages the work and is known as the work-engaging member. The other member is the handle or head member and the relative movement between the work-engaging member and the handle or head member is yieldably opposed by a flat spring bar. The force applied through the wrench is determined by measuring the extent of the relative movement between these two parts. The spring bar has one end extending across the axis of rotation of the work-engaging member as indicated by dotted lines 12' in Figs. 1 and 2, this spring bar then extending rearwardly therefrom longitudinally of the handle member in radial relation to the axis of rotation of the work-engaging member and the other end being pivotally connected to the head. This arrangement of the parts provides a substantially continuous moment arm of substantially constant length.

It will be observed that the pointer 13 may be fixedly secured to the work-engaging member 10 so that it may appear to be an integral part thereof. It may taper however and be offset upwardly at 25 to provide sufficient space above spring bar 12 for a trigger finger 26 adapted to be adjustably carried by pointer 13 by means of an adjusting screw 27. The tip of pointer 13 passes through an arcuate slot or cut-away portion 28 on dial 18 formed by bending part 29 in an arc to protect the pointer 13 and its tip 30. The scale reading 31 is calibrated in foot pounds, or according to any desired terms, so that when torque represented by a predetermined reading on dial 18 is applied through handle 22, head 19, spring bar 12 and work-engaging member 10, the relative rotative movement of the head member 19 and handle 22 about work-engaging member 10 as a pivot through the deflection of spring bar 12 will bring pointer tip 30 to this predetermined reading and cause trigger finger 26 to engage and trip a trigger 35 projecting upwardly from head 19.

The actuation of trigger 35 is for the purpose of releasing a normal rigid connection with head member 19 that functions to transmit the force applied to handle 22. This connection comprises in the specific illustration disclosed a releasable bar 36 that is pivotally mounted upon pin 37 carrying spacer sleeves 38 disposed on opposite sides of bar 36 to keep the same centered, the pin 37 being horizontally anchored in handle 22 as indicated at 39. Bar 36 is also mounted in pivotal relation upon pin 40, which lies parallel to pin 37 but is anchored in the horizontally bifurcated end 41 of a sleeve extension 42 fixedly anchored at 43 in head member 19 and forming in fact a functionally integral part of head member 19. Bar 36 is adapted to be so disposed with respect to this bifurcated end 41 that it will normally lie across the same with its side edges disposed along or within the bifurcated openings 44 and 45. The rigid connection is normally maintained by a trip member 46 having its curved forward end 47 engaging in a correspondingly curved notch 48 (which may be pointed as will hereinafter appear) in the forward end 49 of bar 36, the latter part having end edges 50 and 51, which, as will be explained, are adapted to strike the inside surface 52 of handle 22 when this rigid connection is broken.

One possible form of mechanism for holding trip member 46 socketed in notch 48 of bar 36 to restrain the bar 36 from normally moving relative to sleeve 42 is illustrated in Figs. 4 to 6, inclusive. A spring pressed rod 53 with a head 54 and a coil spring 55 pressing the head 54 forwardly against trip 46 extends rearwardly of this trip 46, the head 54 and spring 55 lying in a smaller sleeve 56 slidably disposed in sleeve extension 42. Spring 55 is confined in a chamber 57 while trip 46 lies in the forward end of this chamber with the head 54 of rod 53 pressing thereagainst and tending to expel the trip outwardly, this action being restrained by the notch 48 during the time the rigid connection is maintained, as shown in Fig. 5, or by a portion of outer face 49 of bar 36, when the rigid connection is broken as shown in Fig. 6. When the rigid connection is broken, a portion of the outer face 49 will push the trip 46 inwardly against the tension of spring 55, the latter being compressed as shown in Fig. 6. This portion of outer face 49 of bar 36 will also slidably force sleeve 56 inwardly in sleeve extension 42 to compress a spring 59 of larger diameter lying between sleeve 56 and a fixed tubular member 60 anchored in sleeve extension 42 and extended in head member 19.

Trigger 35 may in one possible embodiment of the invention comprise a pivotally mounted cam member 62 lying in a slot 63 disposed centrally in a cylindrical housing 64 which is held in an opening 65 formed in head member 19 by tubular member 60 lying in a cutaway portion 61 as shown in Figs. 4 and 6. Slot 63 may extend a substantial distance downwardly in housing 64, as shown in Figs. 3 and 4, so that an apertured shuttle plate 66 may be disposed for slidable movement below trigger cam member 62. This cam member 62 is adapted to be pivotally carried on a pin 67 driven transversely through housing 64. A flat cam face 68 on cam member 62 functions to bear against the upper face of shuttle plate 66, which is adapted normally to be pressed upwardly against this cam face 68 by a coil spring 69 disposed in a lower chamber 70 in housing 64 and into which the plate 66 projects for engagement by the coil spring 69.

It will be observed in Figs. 3 and 4 that the tip of rod 53 normally lies in an aperture 71 in plate 66. When the trigger 35 is engaged by finger 26 and its cam member is caused to rotate about pin 67, cam face 68 will depress plate 66 and bring aperture 71 into alignment with an opening 72 in housing 64. When this occurs, the tip of rod 53 will be forced forwardly to move into opening 72 by the force being applied at the handle, which force is of course transmitted by these parts to the head member 19. Thus the rigid connection is broken and force being applied at handle 22 is utilized to swing bar 36 in a hammer blow action against the inside surface 52 of the handle. It will be apparent that this hammer blow may be equal to the force imparted to the handle by the operator and that its striking effect will be of a magnitude to be definitely imparted by a jarring action to the operator and leave no doubt about the predetermined torque represented by the setting of trigger finger 26 being imparted to the work by the work-engaging member 10. Thus, with the impact action equal to the force imparted to the handle by the operator, the rigid connection between the handle and the head member is temporarily broken, but will be quickly restored by the tendency of the parts automatically to reset when the force imparted to the handle is released.

When the handle 22 is grasped and rotated in either direction, the pressure applied will be transmitted through the head 19, spring bar 12 and the work-engaging member 10 to the work. As the resistance of the work causes the spring 12 to flex, relative rock movement takes place between the head 19 and work-engaging member 10 and the amount of the force applied may be measured by the extent of this rock movement through the pointer 13 and gauge dial 18. If the handle 22 is to be rotated clockwise as viewed in Fig. 1, trigger finger 26 is set to engage the trigger 35 when a predetermined torque is applied to the work as determined by this relative rock movement between head 19 and work-engaging member 10. This will effect a release of part 36 so that it will swing to the position shown in Fig. 6, to-wit: with corner 50 striking handle wall 52 and with a portion of face 49 forcing trip 46 inwardly to compress springs 54 and 59 and hold rod 53 in opening 72 in housing 64.

The feature of automatic resetting of the parts to restore the rigid connection is obviously accomplished once the force applied to the handle is discontinued. The spring bar 12 will then straighten to return trigger finger 26 to a position away from the trigger 35, and the pivotal action of handle 22 about pin 37 together with the pivotal mounting of bar 36 on pin 40 will cause this handle to straighten, this bar 36 also straightening by reason of its double pivotal mounting at 37 and 40, so that the portion of face 49 of bar 36 will no longer abut against trip 46. Spring 55 will then move rod 53 to withdraw its tip from opening 72 in housing 64, whereupon spring 69 in chamber 65 in head 19 will lift shuttle plate 66 to the position shown in Fig. 4 and the trigger cam plate 62 will assume its normal position shown in Fig. 3. Trip 46 will be forced into notch 48 in bar 36 and the forward face 75 of sleeve 56 will be brought and held against face 49 of bar 36. Thus the rigid connection is effectively restored by a tendency of the parts to be automatically resettable.

The parts comprising the normally rigid connection including bar 36 transmitting the force imparted to handle 22 to head 19, bar 12 and work-engaging member 10 to the work may be assembled in any suitable way. However, as illustrated in the drawings, pin 40 is used to hold these parts in position, thereby simplifying the assembly of the parts and making replacement of a part a simple matter. It will be observed that pin 40 is headed at one end and is provided with a groove at the other end to receive a spring ring 40' holding pin 40 in assembled position. The removal of ring 40' and pin 40 disconnects handle 22 and bar 36 from sleeve extension 42. Trip 66 and associate parts like rod 53, springs 55 and 59, sleeve 56, tubular member 60 will be free for removal, while housing 64, shuttle plate 66 and its spring 69 may be dropped out of chamber 65. It will be apparent that the assembly is as simple and will involve little labor. It is not tedious and the parts are designed to drop readily into their proper relative positions to be held assembled by the locking of pin 40 in position as illustrated in Fig. 4.

A further advantage of the arrangement of the parts of this aforesaid normally rigid connection is that should any parts wear and not be replaced, the friction caused thereby will not affect the operation of the device whether it be the torque measuring wrench specifically illustrated in the drawings as one possible embodiment of the invention, or any force transmitting device to which the invention will readily lend itself. As to this torque measuring wrench, it will be apparent any looseness of the parts due to wear will not affect the making of the normally rigid connection for transmitting the force imparted at the handle, or will not affect the operation of the spring bar in flexing, and the operation of the pointer and dial to indicate the extent of this flexing which acts to measure the torque applied at the work-engaging member to the work. Bar 36 will be tripped in the same way and the hammer blow effected to indicate or signal the application of a predetermined torque at the work.

Different forms of structure may be provided to accomplish the results of the invention disclosed. In Fig. 7, handle 80 is similarly mounted upon a bar 81 by a pin 82 fixedly attached to handle 80. Bar 81 is also pivotally carried upon a pin 83 secured in bifurcated sleeve 84, bar 81 lying crosswise of the bifurcated portion so that it moves outwardly of either opening 85 or 86 when swung about pins 82 and 83. Bar 81 is designed in the same manner and is provided with an arcuate notch 87 to receive a trip 88 slidably carried within a sleeve 89 of smaller diameter disposed within the bifurcated sleeve 84. A rod 90 extends outwardly of sleeve 89 and is provided with a head 91 lying therein and abutting against trip 88, there being a spring 92 urging this head 91 against the trip 88 to hold it against bar 81 to maintain the rigid connection transmitting the force imparted to the handle. Another coil spring 93 is disposed within sleeve 84 to urge the smaller sleeve 89 outwardly so that the end face 94 of the latter will be held against the end face 95 of bar 81 when maintaining the rigid connection. A fixed tubular member 96 is likewise seated in the inner end of sleeve 84 and also partly in head member 97. The parts of the trigger device cooperating with the end of rod 90 may be the same in this embodiment as in Figs. 1 to 6, inclusive. Shuttle plate 66 receives the tip of the rod 90 and is movable vertically in housing 64 by movement of cam member 62 of trigger 35 when the latter is actuated by trigger finger 26. This movement of plate 66 will bring the tip of rod 90 into registration with opening 72 to cause trip 88 to be forced out of notch 87 and arm 81 allowed to utilize the force being imparted to handle 80 to swing into a position about pins 82 and 83 to produce a hammer blow by striking against handle 80.

The force to keep trip 88 in notch 87 of bar 81 in this embodiment will not be as great as in the previous form, and consequently, spring 92 need not be as large as spring 54. Trip 88 is provided in two parts 98 and 99 having sloping cooperating faces adapted to produce frictional resistance resisting movement. This tends to keep these parts in position to maintain the rigid connection, but this connection will be readily broken as in the former case when plate 66 moves to bring the tip of rod 90 into opening 72.

In the embodiment disclosed in Fig. 8, the handle 102 is likewise mounted upon a bar 103 by a pin 104 fixed in handle 102. Bar 103 is also pivotally carried upon a pin 105 secured in the bifurcated sleeve 106. Bar 104 is provided in this instance with a V-opening (referred to hereinabove) 108 in its front face 107 adapted to receive a V-tip 109 at the end of a trip 110 arranged in this instance to include a chamber 111 in which the head 117 of rod 118 is disposed. A coil spring 119 encircles the rod 118 and is also disposed in chamber 111 to urge rod 118 forwardly in constant contact with trip 110 while spring 120 in sleeve 106 urges trip 110 forwardly so as to hold V-tip 109 in notch 108. Thus the smaller sleeve housing the trips in the other embodiment is made a part of the trip in this form and the chamber 111 is formed directly therein so that the spring 119 and the head 117 of the rod 118 will lie therein. A plate 121 may be placed upon rod 118 at head 117 for spring 119 to press thereagainst, while at the opposite end a plate 122 may be inserted in the chamber opening and the edge of the part 110 peened thereover as at 123 to hold the plate 122 in position. In all other respects, the parts are the same as in the previous forms and function in a like manner.

In Fig. 9 there is illustrated an embodiment employing another form of the invention. Handle 125 is mounted upon a bar 126 by a pin 127 fixed in handle 125. Bar 126 is also pivotally carried upon a pin 128 secured in bifurcated sleeve 129. An arcuate notch 130 in bar 126 is adapted to receive an arcuate knob 131 on the outer face 132 of trip 133 which is slidably movable in sleeve 129. At the rear end of sleeve 129, a smaller sleeve 134 is anchored, a portion extending in head member 135 if so desired. Within sleeve 134 is disposed concentrically arranged springs 135 and 136. Spring 135 is arranged to encircle a rod 137 adapted to be anchored in a member 138 having a tapered face 139 at its outer end adapted to bear against ball bearings 140 riding against the inner face of trip 133. Sleeve 134 is likewise provided with a tapered face 141 which also has the bearings 140 riding thereagainst. A sleeve 142 is carried upon the forward end of member 138 and the spring 136 bears thereagainst. Thus the bearings 142 are forced forwardly and toward the center against surface 139 of member 138, and thus the force to keep trip 133 against bar 126 to maintain the normally rigid connection need not be as great.

Another form of trigger device that may be used instead of that illustrated in Figs. 1 to 8, inclusive, is shown in Fig. 10. Instead of employing vertically slidable shuttle plate 66, a rotatable housing 145 is disposed in head member 135 and is provided with two openings 146 and 147 (Fig. 9) adapted to be brought alternately into registration with rod 137. A trigger 148 projects from housing 145 to be engaged by trigger arm 26 and moved in either direction depending upon the direction of rotation of handle 125 when grasped to apply torque to the work. Housing 145 is provided with a chamber 149 for receiving a torsion spring 150 anchored at one end by screw 151 and at the other end by screw 152. Obviously, housing 145 will be returned to its normal position with its trigger 148 lying longitudinally of the wrench when the trigger 148 is disengaged by trigger finger 26 and the force applied to the handle is released. When the force is released at the handle, it is apparent that the tip of the rod of this mechanism is withdrawn from either opening 146 or 147 and the housing 145 is then permitted to rotate to normal position.

Attention is directed to the fact that in this art the entire portion of the device from the end of the spring 12 to the end of the handle 22, which includes head 19 and sleeve extension 42, as shown in Figs. 1 to 6, inclusive, is often termed the handle member and the part which I have herein termed handle 22 is often called a grip member. On the other hand, this portion has also been broadly called a head member, in which event handle 22 may or may not be included as a part thereof. It will be understood, therefore, that the term "force applying member" as used herein is intended to include the handle, if it is provided, and all other parts going to make up the same, and that the hammer blow may be directed against any part thereof.

From the foregoing description, it will be apparent that an exceedingly novel structure, in a force transmitting device, is disclosed and that the mechanism forming a normal rigid force transmitting connection adapted to release itself and produce a hammer blow, by the force being transmitted, by a trigger device actuable to indicate the application of a predetermined torque at the work, or indicate the extent of the application of this force being transmitted, may be made and disposed of as a unit independently of the force transmitting device without departing from the scope of the invention. Although, in most force transmitting devices incorporating the invention, a torque measuring device may be employed, it will be understood that the invention has use in force transmitting devices not having a torque measuring device.

I believe that I am the first to provide a force transmitting connection that normally remains rigid to transmit force but which is adapted to be released to produce a hammer blow to the mechanism no matter where the hammer blow may be applied. This hammer blow is of a magnitude that leaves no uncertainty about its application to the mechanism when it is applied, and hence, it serves as a very effective signal, either audible or in a tactile sense. The parts are simple, easy to assemble and permit incorporation in any force transmitting device at a reasonable cost. The jar produced at the handle, if incorporated in a torque measuring wrench as disclosed herein, tends to facilitate the use of the wrench in that it adds to the speed at which the attendant handles the wrench and assures more accurate application of a predetermined torque at the work.

As a further application of the invention, its use to indicate a limited movement, straight or otherwise, of a device, such for example as a slide on a milling machine, or a shuttle on a grinder, will be apparent from the foregoing description. A suitably spaced element or the like may be used to effect a tripping action to produce the hammer blow against the structure to indicate a predetermined travel to the operator gripping the handle, so that it will act as a warning to cause him to bring the operation to a stop when a certain point in the movement is reached. In this connection, and for many similar uses, the portion of the structure disclosed herein beginning at the head 19 and extending rearwardly to and including the handle 22 may be employed, the tripping action occurring when a properly positioned trip element engages member 35. It will be apparent that such uses and modifications may be made without departing from the invention.

Without further elaboration, the foregoing will so fully explain the gist of my invention that others may, by applying current knowledge, readily adapt the same for use under varying conditions of service, without eliminating certain features, which may properly be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:

1. A tripping mechanism for indicating the application of a predetermined force adapted for use with a force transmitting mechanism which includes a handle member and a yieldably connected force applying member, said tripping mechanism comprising a normally rigid connection through which the force imparted to said handle member is transmitted to said force applying member, a releasable member forming a part of said means adapted to break said normally rigid connection and deliver a hammer blow to jar said handle member, said member comprising a bar pivotally mounted upon said handle and upon said force applying member, there being means for restraining said bar to prevent said bar from swinging about its said pivotal mountings.

2. A force transmitting mechanism comprising a force applying member, a work-engaging member, a torque measuring device interposed between said force applying member and said work-engaging member, means for momentarily releasing the force of the load being applied by said force applying member and for utilizing the force to create a hammer blow to jar said force applying member, a trigger device for operating said releasing means, and means actuable through movement of said torque measuring device to actuate said trigger device.

3. A force transmitting mechanism comprising a force applying member having a grip portion, a work-engaging member, a torque measuring device interposed between said force applying member and said work-engaging member, means for momentarily releasing the force of the load being applied at said grip portion and for utilizing the force to create a hammer blow to jar said grip portion, a trigger device carried by said force applying member for operating said releasing means, and means actuable through movement of said torque measuring device to actuate said trigger device.

4. A force transmitting mechanism comprising a force applying member including a handle member, a work-engaging member connected to said force applying member, a normally rigid connection between said handle member and said force applying member, said connection including a releasable member adapted to be actuated to break said connection upon the application of a predetermined torque at said work-engaging member to effect a hammer blow against said handle member, trigger means for said releasing member, and a part indicating the application of a predetermined torque at said work-engaging member for tripping said trigger means.

5. A force transmitting mechanism comprising a manually operable force applying member, a work-engaging member connected to said manually operable force applying member, there being an overload release connection between said members including a part through which force imparted to said manually operable force applying member is transmitted to said work-engaging member, said part forming a part of a rigid connection for transmitting the force and adapted upon release to strike said force applying member, and actuating means for causing said part to break said rigid connection and deliver a hammer blow to jar said manually operable force applying member there being means controlled by the torque at said work-engaging member for operating said actuating means, said actuating means including provisions for automatically resetting said part to restore said rigid connection when the force applied to said manually operable force applying member is discontinued.

6. A force transmitting mechanism comprising a manually operable force applying member, a work-engaging member connected to said manually operable force applying member, there being an overload release connection between said members including a part through which the force imparted to said manually operable force applying member is transmitted to said work-engaging member, said part forming a part of a rigid connection for transmitting the force and adapted upon release to strike said force applying member, said rigid connection including a trip normally restraining said part against breaking said connection, and a trigger device controlling said trip whereby said trip releases said part to break said connection and cause said part to deliver a hammer blow to jar said manually operable force applying member upon the application of a predetermined torque at said work-engaging member by the force imparted to said manually operable force applying member.

7. A force transmitting mechanism comprising a manually operable force applying member, a work-engaging member connected to said manually operable force applying member, there being included a part through which the force imparted to said manually operable force applying member is transmitted to said work-engaging member, said part being pivotally related to said manually operable force applying member but normally forming a part of a rigid connection for transmitting the force, a trip for restraining said part against pivotal movement, spring means for urging said trip against said part, and a movable member for releasing said spring means and said trip whereby to free said part and effect a hammer blow thereby to jar said manually operable force applying member, said movable member being operable upon the application of a predetermined torque at said work-engaging member by the force imparted to said manually operable force applying member.

8. A torque measuring wrench comprising a head member, a work-engaging member pivotally supported adjacent one end of said head member, a spring yieldably opposing relative rock movement of said work-engaging member and said head member, means for indicating the force applied to the work by registering the extent of the relative rock movement of said work-engaging and said head members, a handle member, a connection between said handle member and said head member for transmitting the force applied at the handle to the head member and transmitted through said spring and work-engaging member, said connection including releasing means for imparting a blow to jar said handle member, said releasable means being actuable by said indicating means.

9. A torque measuring wrench comprising a work-engaging member, a head member adapted for rock movement relative to said work-engaging member, a spring yieldably opposing said movement, means for indicating the force applied to the work by registering the extent of relative rock movement of said work-engaging member and said head member, a handle member pivotally mounted at one end of said head member, the pivotal mounting for said handle member including a bar pivoted upon one end of said head member and to said handle member, a trip for normally restraining said bar from moving relative to said head and handle members, a trigger actuable by said indicating means upon the application of a predetermined torque at said work-engaging member, the movement of said trigger releasing said trip and said bar, the release of said bar about its pivotal connections with said head member and said handle member creating a hammer blow to jar said handle member.

10. A torque measuring wrench comprising a work-engaging member, a head member adapted for rock movement relative to said work-engaging member, a spring yieldably opposing said movement, means for indicating the force applied to the work by registering the extent of relative rock movement of said work-engaging member and said head member, a handle member at one end of said head member, a connection between said handle member and said head member including a bar, means for restraining said bar from moving relative to said head member whereby said bar transmits to said head member the force applied to said handle member, and means for releasing said restraining means to break said force transmitting connection formed by said bar and cause the bar to create a hammer blow to jar said handle member, said releasing means being actuable by said indicating means.

11. A torque measuring wrench comprising a work-engaging member, a head member adapted for rock movement relative to said work-engaging member, a spring yieldably opposing said movement, a handle member at one end of said head member, a bar forming the connection between said handle member and said head member, means for restraining said bar from moving relative to said head member whereby said bar transmits to said head member the force applied to said handle member, and means operated by a predetermined torque at said work-engaging member reflected by the yield of said spring for

releasing said restraining means to break said force transmitting connection formed by said bar and cause the bar to create a hammer blow to jar said handle member, said releasing means being operated by a part actuated by the relative rock movement between said work-engaging member and said head member.

12. A torque measuring wrench comprising a work-engaging member, a head member adapted for rock movement relative to said work-engaging member, a spring bar yieldably opposing said movement, a handle member at one end of said head member, means forming a connection between said handle member and said head member, means for restraining said connecting means from movement relative to said head member whereby said connecting means transmits to said head member the force applied to said handle member, and means operated by a predetermined torque at said work-engaging member reflected by the yield of said spring for releasing said restraining means to break said force transmitting connection and cause said connecting means to effect a hammer blow to jar said handle member, said releasing means being operated by a part actuated by the relative rock movement between said work-engaging member and said head member.

13. A torque measuring wrench comprising a work-engaging member, a head member mounted for rock movement about said work-engaging member by means of a spring bar disposed between said head member and said work-engaging member and yieldably opposing relative rock movement between said members, a handle member carried by said head member, a normally rigid connection for transmitting to said head member the force applied to said handle member, and means including a part operable by the flexing of said spring bar between said head member and said work-engaging member for breaking said connection upon the application of a predetermined torque at said work-engaging member, said connection when broken utilizing the force of the load being applied to create a hammer blow to jar said handle member, said means including provisions for automatically resetting the same to restore said rigid connection by the release of the force applied from said handle member.

14. A torque measuring wrench comprising a work-engaging member, a head member, a spring bar disposed between said head member and said work-engaging member for yieldably opposing relative rock movement of said head member and said work-engaging member, means for indicating the force applied to the work by registering the extent of relative rock movement of said work-engaging member and said head member, a handle member at one end of said head member, a mounting for said handle member, said mounting including a bar normally forming a rigid connection between said head member and said handle member, a spring pressed trip for restraining movement of said bar relative to said head member, a projection on said trip, a slidable plate, said plate having an aperture therein adapted for registration and the reception of said projection, and a pivotally mounted trigger adapted to be actuated by said indicating means to force said slidable plate into position to cause said projection to register with and be received in said aperture to break said rigid connection formed by said bar.

15. A torque measuring wrench comprising a work-engaging member, a head member, a spring bar disposed between said head member and said work-engaging member for yieldably opposing relative rock movement of said head member and said work-engaging member, means for indicating the force applied to the work for registering the extent of relative rock movement of said work-engaging member and said head member, a handle member at one end of said head member, a mounting for said handle member, said mounting including a member normally forming a rigid connection between said head member and said handle member, a spring pressed trip for restraining movement of said member relative to said head member, a projection on said trip, a spring pressed sleeve housing said trip, said projection extending through said sleeve, a movable plate having an aperture therein adapted for registration and the reception of said projection, and a pivotally mounted trigger adapted to be actuated by said indicating means to force said movable plate into position to cause said projection to register with and be received in said aperture to break said rigid connection formed by said member.

16. A torque measuring wrench comprising a work-engaging member, a head member, a spring bar disposed between said head member and said work-engaging member for yieldably opposing relative rock movement of said head member and said work-engaging member, means for indicating the force applied to the work for registering the extent of relative rock movement of said work-engaging member and said head member, a handle member at one end of said head member, a mounting for said handle member, said mounting including a member normally forming a rigid connection between said head member and said handle member, a spring pressed trip for restraining movement of said member relative to said head member, a projection on said trip, a movable plate having an aperture therein adapted for registration and the reception of said projection, and a pivotally mounted trigger adapted to be actuated by said indicating means to force said movable plate into position to cause said projection to register with and be received in said aperture to break said rigid connection formed by said member.

17. A torque measuring wrench comprising a work-engaging member, a head member, a spring bar disposed between said head member and said work-engaging member for yieldably opposing relative rock movement of said head member and said work-engaging member, means for indicating the force applied to the work for registering the extent of relative rock movement of said work-engaging member and said head member, a handle member at one end of said head member, a mounting for said handle member, said mounting including a member normally forming a rigid connection between said head member and said handle member, a spring pressed trip for restraining movement of said member relative to said head member, a projection on said trip, a rotatable body disposed in said head member, said rotatable body having an aperture therein adapted for the registration and the reception of said projection, and a trigger adapted to be actuated by said indicating means to move said rotatable body into a position to cause said projection to register with and be received in said aperture to break said rigid connection formed by said member.

18. A force transmitting mechanism compris-

ing a work-engaging member, a manually operable force applying member connected thereto through the intermediary of an overload release mechanism, a torque measuring device operatively disposed relative to said work-engaging member and said manually operable force applying member, and means actuable through movement of a part of said torque measuring device for momentarily releasing said mechanism and utilizing the applied force to create a hammer blow against a part of said force transmitting mechanism.

19. A force transmitting mechanism comprising a manually operable force applying member, a work-engaging member connected to said manually operable force applying member, an overload release operatively disposed relative to said force applying member and said work-engaging member to deliver a hammer blow against said manually operable member upon being released, means for indicating the force applied to the work by said work-engaging member, and means for tripping said overload release by movement of a part of said indicating means.

20. A force transmitting mechanism comprising a manually operable force applying member, a work-engaging member connected to said force applying member, an over-load release through which force imparted to said manually operable member is transmitted to said work-engaging member, said over-load release including a releasable member adapted to effect a hammer blow to jar said manually operable force applying member, means for indicating the torque applied at said work-engaging member by the force transmitted through said over-load release, and a trip actuable at a predetermined setting for releasing said releasing member, said trip being actuable through the movement of said torque indicating means.

21. A torque measuring wrench comprising a work-engaging member, a head member mounted for rock movement about said work-engaging member by means of a spring bar disposed between said head member and said work-engaging member and yieldably opposing relative rock movement between said members, a handle member carried by said head member, a normally rigid connection for transmitting to said head member the force applied to said handle member, and means actuable through the flexing movement of said spring bar for breaking said connection upon the application of a predetermined torque at said work-engaging member, said connection including means to deliver a hammer blow when said connection is broken, said connection when broken utilizing the force of the load being applied to create said hammer blow to jar said handle member.

22. Connecting mechanism for use between parts of a force transmitting device comprising means for connecting said mechanism to each part and to provide a normally rigid connection between these parts to transmit force from one part to the other part, said mechanism including a member adapted to be urged by the force transmitted to move in the direction of the force, a blocking member at one end of said movable member to prevent such movement of said movable member, a releasable member at the opposite end of said movable member, said releasable member being held by said movable member while the latter is locked to provide a force transmitting connection at said end between said connecting mechanism and one of said parts of said force transmitting device, and a tripping device for said blocking member adapted to cause said blocking member to free said movable member for movement in the direction of the force, the movement of said movable member releasing said releasable member to cause said releasing member to deliver a hammer blow against one of said parts of said force transmitting device.

23. Connecting mechanism for use between parts of a force transmitting device comprising means for connecting said mechanism to each part and to provide a normally rigid connection between these parts to transmit force from one part to the other, said mechanism including a member adapted to be urged by the force transmitted to move in the direction of the force, a blocking member to prevent such movement of said movable member, a releasable member to provide a force transmitting connection between said movable member and one of said parts of said force transmitting device, and a tripping device for said blocking member adapted to cause said blocking member to free said movable member for movement in the direction of the force, the movement of said movable member releasing said releasable member and delivering a hammer blow at the time of said release against one of said parts of said force transmitting device.

24. Connecting mechanism for use between parts of a force transmitting device comprising means for connecting said mechanism to each part to effect a normally rigid connection between these parts whereby to transmit force from one part to the other part, said mechanism including a member movable forwardly in the direction of force transmitted, a blocking member preventing such forward movement of said member, a trip to actuate said blocking member to allow said movable member to move forwardly, and a releasable member adapted to be released by the forward movement of said movable member causing a hammer blow at the time of said release against one of the parts of said force transmitting device.

25. A force transmitting mechanism comprising a force applying member including a handle member, a work-engaging member, a torque measuring device operatively disposed relative to said force applying member and said work-engaging member, a normally rigid connection between said handle and said force applying member by means of which the force imparted to said handle member is transmitted to said force applying member, a releasable member forming a part of said normally rigid connection and through which the force imparted to said handle member is transmitted to said force applying member adapted to break said normally rigid connection and deliver a hammer blow to jar said handle member, means for actuating said releasable member, and a part actuable by relative movement between said work-engaging member and said force applying member for operating said actuating means.

26. A torque measuring wrench comprising a head member, a work-engaging member pivoted adjacent one end of said head member, a spring bar disposed between said head member and said work-engaging member and yieldably opposing relative rock movement between said members, a handle member at the opposite end of said head member, a normally rigid connection between said handle member and said head member

adapted to comprise a force transmitting connection, said connection including means to deliver a hammer blow against said handle member, and means for releasing said normally rigid connection upon the application of a predetermined torque at said work-engaging member whereby to break said normally rigid connection and effect thereby a hammer blow directly against said handle member, said releasing means being actuated by a part actuated by the relative rock movement between said work-engaging member and said head member.

PAUL A. STURTEVANT.

Pltf's Ex "18"

FILED
JAN 30 1946
CHARLES E. STEWART, Clerk

P. Ex 18
C. Sn

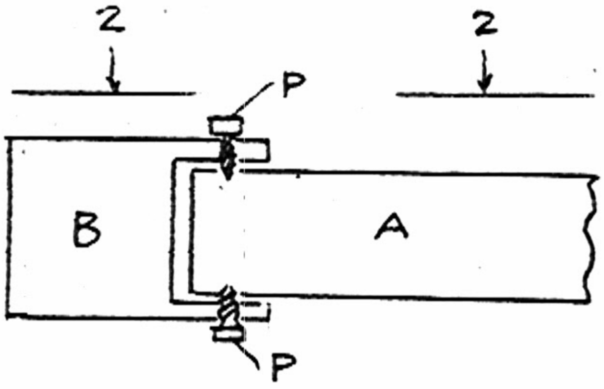

FIG 1

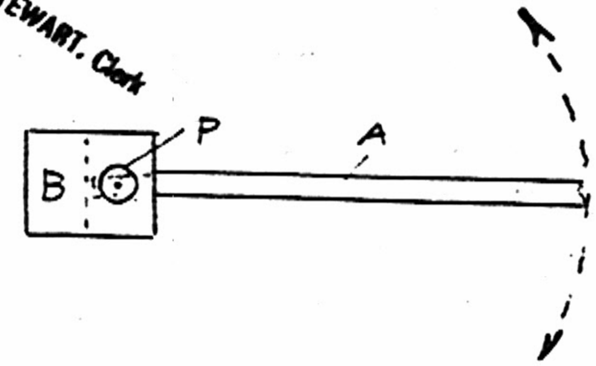

FIG 2

A IS PIVOTALLY SUPPORTED ON B BY PIVOTS P

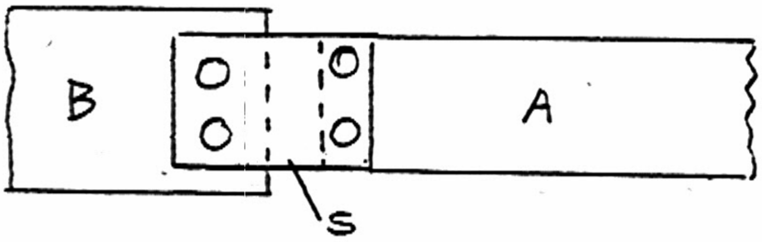

FIG 3

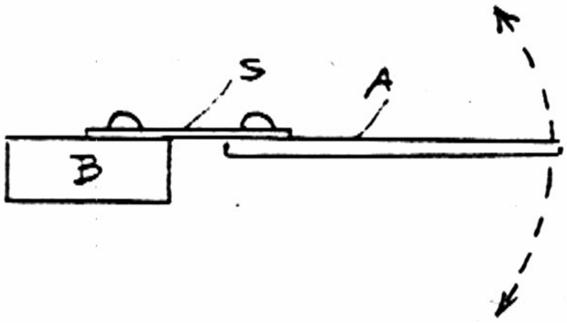

FIG 4

A IS PIVOTALLY SUPPORTED ON B BY SPRING S.

Civil Action
No 22403

Paul A. Sturtevant
vs.
Casper W. Ooms